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Explaining Relationship Satisfaction: Attachment, Technology Use, and Sexual Satisfaction in Long-Distance Relationships

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ABSTRACT

Bloom, A. L., Ph.D. Purdue University, August 2015. Explaining Relationship Satisfaction: Attachment, Technology Use, and Sexual Satisfaction in Long-Distance Relationships. Major Professor: M. Carole Pistole, Ph.D.

The purpose of this study was to better understand long-distance relationships (LDRs). More specifically, I examined how attachment style, technology use, and sexual satisfaction contribute to LDR satisfaction and compared the model to geographically close relationship (GCR) satisfaction. I also examined attachment style and LDR/GCR differences in amount of and channels of technology use. College students (N = 326), who were 18 years or older and identified as in a romantic relationship, completed the following measures: (a) Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), which categorically measures attachment style; (b) a deconstructed version of the RQ, which provides a continuous measure of attachment style; (c) Technology Use Questionnaire (TUQ), which was created for this study to measure the frequency of using various technology channels (i.e., phone, e-mail, social networking sites [SNS], text messaging, instant messaging [IM], and video chat), (d) General Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998), which measures sexual satisfaction; and (e) Couples Satisfaction Index-16 (CSI-16; Funk & Rogge, 2007), which measures relationship satisfaction. A hierarchical multiple regression (HMR) indicated that video chat use and sexual satisfaction contributed significantly and positively to LDR

relationship satisfaction. A second HMR indicated phone and email use and sexual satisfaction contributed significantly and positively to GCR relationship satisfaction. A comparison of the models revealed that technology channel use contributed differently to LDR and GCR relationship satisfaction, with sexual satisfaction contributing to relationship satisfaction in both LDRs and GCRs. Additionally, an ANOVA for total amount of technology use and a MANOVA for technology channels used revealed significant differences in attachment style and LDR/GCR technology use. More specifically, although there was no attachment style difference in the amount of technology use, the securely attached reported higher phone use than the preoccupiedly and fearfully attached, and the securely attached reported higher email use than the preoccupiedly attached. Notably, LDR participants reported higher overall technology use than GCR participants and LDR participants reported higher phone, texting, and video chat use than GCR participants. Counseling psychology practice and research implications are discussed.

CHAPTER I

INTRODUCTION

In the U.S. increasingly fast-paced and career-focused society, many couples are choosing to maintain their most important romantic relationship while living apart from the romantic partner in order to pursue individual educational and career goals (Stafford, 2005). The prevalence of long-distance romantic relationships (LDRs) is increasing in the general population (Aylor, 2003) and highly common in the college student population, with as many as 25 to 50% of college students currently being involved in a LDR and up to 75% having been in a LDR at some point in time (Dellman-Jenkins, Bernard-Paolucci, & Rushing, 1994; Guldner & Swensen, 1995; Stafford, 2005). Despite empirical support for the success of LDRs (Dainton & Aylor, 2002; Stafford & Merolla, 2007; Stafford & Reske, 1990; Stephen, 1986), the general public seems to have a persistent belief that LDRs are not and cannot be successful (Rhodes, 2002; Stafford, 2005). For example, the lay public and social scientists assume that LDRs are stressful, involve sadness over missing the partner, and have higher rates of break-up than geographically close romantic relationships (GCRs; Stafford, 2005; Van Horn et al., 1997). Consistent with this belief, LDRs seem to contradict many assumptions about close relationships (Bergen, 2010; Rohfling, 1995; Stafford, 2005). In a LDR, partners spend more time apart than together, must travel across geographic distance for brief face-to-face visits, and have restricted

communication opportunities when separated. With all of these challenges, one might ask, "How is it that LDRs can be as successful and satisfying as their GCR counterparts?" Although research has examined factors related to positive LDR outcomes (e.g., satisfaction), much remains unknown in explaining LDR satisfaction, particularly as to whether and how relationship factors may contribute differently and similarly to LDRs and GCRs.

As the foundation of a romantic relationship and its bonding (Hazan & Shaver, 1987; Shaver, Hazan, & Bradshaw, 1988), attachment theory provides a useful perspective for examining LDR success (Pistole, 2010). Attachment theory explains some of the thoughts, emotions, and behaviors that are reported by LDR partners, including their responses to the separation-reunion cycle that punctuates their lives (Pistole, 2010). For example, LDR partners frequently report heightened sadness following in-person visits and feelings of loneliness and longing during the separation (Guldner, 1996; Sahlstein, 2004). From an attachment theory perspective, these emotional reactions signify concerns about the proximity to the partner and the accessibility of the partner to meet attachment-related needs (e.g., comforting when upset and guidance). In addition, attachment describes emotionally important relationships across the life span and illustrates the influence of individual differences (i.e., attachment styles) in relationship behavior. For example, individuals who develop a secure attachment style see themselves as loveable, view the partner as accepting and responsive, and appropriately seek out the partner for attachment-related needs.

As is relevant to individual differences in attachment style and likely pertinent to relationship satisfaction, the partners' communication is important to maintaining

attachment-related proximity to one another (Mikulincer & Shaver, 2007; Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013). This attachment-related proximity may be especially critical to LDRs; that is, when considering the unique challenges of LDRs, constricted communication arises as a highly prevalent and important concern (Guldner, 2004; Rohfling, 1995; Westefeld & Liddell, 1982). LDR partners cannot have daily face-to-face contact if desired, because their geographic distance from one another is too great. In the past, LDR partner communication, for example, by long distance phone calls, was expensive and required partners to coordinate their schedules to be near a landline phone (Aylor, 2003). Over the last several decades, the internet and mobile technology, which have become more integral to daily life, have aided LDR partners in communicating with one another in a more inexpensive, timely, and efficient way (Rohfling, 1995). For example, video chat technology (i.e., Skype, FaceTime) allows LDR partners to see and hear each other, thereby providing conditions for maintaining attachment-related proximity, which was not so possible in previous years' communication methods. More specifically, technology-based communication is particularly important in LDRs because of functioning to maintain attachment proximity. Although technology use may also function as proximity maintenance in GCRs, in LDRs, partners may more effectively maintain their desired level of attachment-related proximity in the situation where the partner is physically distant and unable to be accessible if needed. If so, then the amount and, perhaps, the channel of technological communication may influence relationship satisfaction, particularly for LDRs. In fact, frequent telephone calls have been linked to high relationship satisfaction in LDRs

(Dainton & Aylor, 2002). Nonetheless, additional study is needed to examine a wider range of technology channels.

Further, physical communication and contact is also restricted in LDRs. Because LDR partners spend limited amounts of time in the same physical location, they have limited opportunities to engage in intimate activities, such as sex, which may then also occur less often. Despite research finding similar LDR and GCR romantic relationship satisfaction (Dellman-Jenkins et al., 1994; Guldner & Swensen, 1995; Holt & Stone, 1988; Roberts & Pistole, 2009; Stafford & Reske, 1990), it may be that sexual satisfaction differs in LDRs and GCRs, with sexual satisfaction contributing differently to LDR and GCR relationship satisfaction. On the other hand, it could be that LDR partners minimize the importance of sex in their relationships (Neustaedter & Greenberg, 2011), with sexual satisfaction having no bearing on overall relationship satisfaction. However, at this time, the importance of sexual satisfaction in explaining LDR and GCR relationship satisfaction remains unstudied and warrants further examination.

Statement of Purpose and Importance of the Study

In this study, I seek, primarily, to examine how specific relationship factors (i.e., attachment style, technology use, and sexual satisfaction) contribute to LDR relationship satisfaction. Secondarily, I seek to examine attachment style and LDR/GCR differences in technology use. More specifically, my primary purpose is to examine the unique contribution of attachment style, technology use (i.e., amount of use for each channel), and sexual satisfaction to LDR relationship satisfaction. Because previous research (Lee & Pistole, 2012) found non-equivalent LDR and GCR models explaining satisfaction using a different set of variables than mine, I will also examine the same factors in a GCR

model so that I can compare the LDR and GCR models, descriptively, and note any different or similar contributions to relationship satisfaction. Secondarily, I examine both (a) attachment style differences and (b) LDR/GCR differences in the overall amount of technology use and in the frequency of specific technology channels used for communication with the romantic partner. Relatedly, I am also interested in any preferences for specific technology channels within each attachment style. Notably, a PsycINFO search revealed no research examining the combination of attachment style, technology use, sexual satisfaction, and relationship satisfaction in LDRs or GCRs.

This study is important for a number of reasons. First, I extend the attachment literature by examining the relatedness of attachment style and technology use. The handful of recently published studies generally include only one or two forms of technology use and have reported somewhat inconsistent findings. Second, I extend the LDR literature to include increasingly popular forms of technology use. Although researchers are beginning to identify patterns of technology use in romantic relationships in general, few studies have examined technology use in LDRs; and those studies that have included technology use as a variable have examined only a limited number of technology forms. For instance, in quantitative research, Dainton and Aylor (2002) examined phone calls and text messaging; and in a qualitative study Neustaedter and Greenberg (2011) examined video chat as a way to hang out with the partner, thereby highlighting the unique utility of technology to LDRs. Knowledge on technology use in LDRs is, however, still incomplete; so additional study is needed. Third, I examine sexual satisfaction in LDRs. This knowledge is potentially important and currently overlooked. Finally, my results can be applied by counseling psychologists in a clinical

setting and in future research. Individuals in LDRs have unique stressors that may lead them to seek counseling (Holt & Stone, 1988; Rhodes, 2002). My results can aid counseling psychologists in normalizing LDR challenges and in providing support and resources for increased relationship satisfaction. For example, my results may suggest interventions for individual counseling (i.e., evidence-based practice; APA, 2006) and be useful for designing workshops or outreach programs for LDR partners.

Relevance to Counseling Psychology

This study is relevant to counseling psychology in that it is consistent with the themes of counseling psychology, relates to counseling psychologists' roles, fits with the scientist-practitioner training model, and is pertinent to diversity. First, my study relates to two major counseling psychology themes, a lifespan developmental perspective and the importance of strengths and assets (Gelso & Fretz, 2001). Consistent with the lifespan developmental theme, attachment theory describes the normative process of developing and maintaining emotionally important relationships (Bowlby, 1969/1982). Furthermore, attachment theory applies across the lifespan, beginning with child-caregiver relationships and transitioning to romantic relationships as individuals near and progress through adulthood. Consistent with the focus on strengths and assets, I seek to identify positive outcomes of LDRs. Despite a negative public perception, LDRs can be both satisfying and successful (Stafford, 2005). In my study, I examine attachment style, technology use, and sexual satisfaction as potential factors that contribute to, that is, explain LDR relationship satisfaction variance. In this vein, my study may help identify unique strengths of LDR partners and their relationships that can aid counseling

psychologists when working with clients whose presenting concerns related to LDR involvement.

Second, my study can be useful to counseling psychologists who engage in remedial and preventive roles. In the remedial role, counseling psychologists help clients who are currently experiencing emotional difficulties and distressing life events. However, they also strive to prevent such issues before they occur and to help clients work toward optimal functioning, both at the individual and relationship levels (Gelso & Fretz, 2001). In this manner, the results of my study can be utilized to work with clients and couples who are currently experiencing distress related to their involvement in a LDR. Because I examine both LDRs and GCRs in contributing to the LDR knowledge base, counseling psychologists may find the results of this study useful in identifying individuals or couples who are experiencing low relationship satisfaction and in helping them explore possible methods of increasing relationship satisfaction. Additionally, counseling psychologists may utilize the results of this study in individual, couples, and outreach work to promote engagement in activities that relate to satisfying relationships and to educate the public about the effectiveness of LDRs. For example, counseling psychologists may utilize the results of my study to create workshops for LDR partners that promote discussion of LDR-specific difficulties and identification of potential solutions to these difficulties (Westefeld & Liddell, 1982).

Third, my study fits with the scientist-practitioner model. In this training and practice model, research and practice inform one another such that research questions can be formed from clinical experiences and clinical interventions are empirically based (Gelso & Fretz, 2001). The research questions in this study were derived from my own

clinical experience in working with college students who reported distress related to LDR involvement. Additionally, the results of this study may be helpful to clinicians in working with LDR-related concerns. The results of this study may aid in both knowledge about LDRs and identifying behavioral patterns that relate to LDR distress. Clinicians can better developed client-related conceptualizations and hypotheses with a stronger knowledge base. By using the results of this study to intervene with clients, clinicians will be implementing the scientist-practitioner model and will also be exhibiting evidence-based practice (APA, 2006).

Finally, my study is pertinent to diversity. For example, LDRs are an alternate and sometimes disavowed relationship structure (Stafford, 2005). Additionally, some segments of the population may be more likely to be involved in a LDR than others. For example, when international students travel to another country for school, they may leave behind romantic partners. Military service and immigration may also lead people to choose to transition to a LDR (Stafford, 2005). Finally, as noted above, LDRs are highly prevalent in the college student population, which has consistently been a focus of counseling psychologists.

CHAPTER II

LITERATURE REVIEW

In this chapter, I provide a theoretical rationale for this study. First, I briefly review the literature on long-distance romantic relationships (LDRs). Then, I discuss attachment theory, technology use, sexual satisfaction, and romantic relationship satisfaction. Finally, I provide a rationale for the study, as well as research questions and hypotheses. In this study, technology use includes telephone calls, e-mail messages, social networking sites (SNSs), text messaging, instant messaging, and video chat. These communication channels are widely available to college students, represented to some extent in recent research studies, and incorporated in a variety of electronic devices (e.g., cell phones, computers, tablets).

Long Distance Relationships

As U.S. culture becomes increasingly mobile with opportunities to create virtual connections across physical distance, many people are likely to be involved in a LDR. Although there is no consensual lay or scientific definition for what constitutes a LDR, generally a LDR is considered to be any romantic relationship where partners expect to maintain a close connection despite geographic distance creating restrictions on physical togetherness and communication (Stafford, 2005). From this definition, the self-perception of being involved in a LDR is more important and useful than socially

imposed criteria, such as mileage or time apart (Stafford, 2005). Due to a variety of reasons, persons in LDRs choose to live in separate residences in separate cities, which means they are involved in recurrent cycles of reuniting briefly (e.g., one to three days), with togetherness followed by a period of separation (Arditti & Kauffman, 2003; Stafford, 2005). For example, Jamie and Leslie are in a committed monogamous relationship, live 150 miles apart while one is in college and the other is graduated and employed, and travel to visit with one another every other weekend before separating for another two weeks. Historically, the reasons for separation included war, immigration, and careers that required travel. Over the past several decades, as is illustrated in the example, the primary reasons for relationship separation are educational and career opportunities (Kaslow, 2001). Thus, LDRs are highly prevalent in college student populations (Dellman-Jenkins et al., 1994; Guldner & Swensen, 1995; Stafford, 2005) and are increasing in the general population (Aylor, 2003).

Despite LDRs' frequent occurrence, relationship experts have only recently begun to develop a LDR knowledge base. Most social scientists, like the lay public, believe in two assumptions that contradict the nature of LDRs: (a) There is a positive association between geographic proximity and frequency of interaction, and (b) frequent interactions lead to positive relationships (Rohfling, 1995; Stafford, 2005). The thinking is that, due to geographic distance, LDR partners have fewer interactions and, thus, would have less positive relationships. More specifically, both scientists and the general public doubt that LDRs can be stable and successful. Not surprisingly then, the majority of LDR research has focused on comparing the quality of LDRs to GCRs, without offering much understanding of the ways in which LDR partners manage the frequent and sustained

geographic separation. More specifically, studies frequently focus on LDR partners' negative reactions to the geographic separation. For example, LDR partners report experiencing negative emotion, such as loneliness (Guldner, 1996; Jackson, Brown, & Patterson-Stewart, 2000) and distress (Johnson, 1987) following in-person visits. LDR college students also reported feeling let down, disappointed, and sad following visits with the partners, with such longing also continuing periodically throughout the separation (Sahlstein, 2004). Further, in a qualitative study (Arditti & Kaufman, 2003), college students in LDRs reported fear, concerns about growing apart, and loneliness as reactions to being unable to see their partners frequently.

Other researchers have examined their expectations for lower LDR relational quality. However, most of these studies have not found significant LDR/GCR differences for (a) relationship satisfaction (Dellmann-Jenkins et al., 1994; Guldner & Swensen, 1995; Holt & Stone, 1988; Pistole, Roberts, & Chapman, 2010; Roberts & Pistole, 2009; Stafford & Merolla, 2007; Stafford & Reske, 1990), (b) intimacy (Dellmann-Jenkins et al., 1994; Guldner & Swensen, 1995; Holt & Stone, 1988; Van Horn et al., 1997), (c) closeness (Roberts & Pistole, 2009; Van Horn et al., 1997), or (d) commitment (Dellmann-Jenkins et al., 1994; Guldner & Swensen, 1995; Holt & Stone, 1988; Van Horn et al., 1997). One study found that relationship satisfaction was higher in GCRs than in LDRs, with the "nebulous feeling that the relationship might not endure" (Van Horn et al., 1997, p. 32) possibly contributing to decreased LDR relationship satisfaction (Van Horn et al., 1997), but Stafford and Reske (1990) found that couples reported higher satisfaction in LDRs than GCRs. Further, the LDR research does not lend support to the assumption that LDRs will end or fail at a higher rate than GCRs (Dellmann-Jenkins et

al., 1994; Helgeson, 1994; Stafford & Merolla, 2007; Stafford & Reske, 1990; Van Horn et al., 1997). In fact, longitudinal studies have reported similar or lower rates of break-up in LDRs compared to GCRs (Stafford & Merolla, 2007; Stafford & Reske, 1990; Stephen, 1986). In general, the reasoning for these studies is consistent with a negative view of LDRs, as compared to GCRs; however, the findings do not support relationship quality or stability differences for LDRs and GCRs, thereby suggesting that the negative view of LDRs is invalid.

Based on these findings, more recently, some researchers have examined how LDRs function, that is, whether they function in the same way as GCRs. For example, one study found that high investments were linked to LDR commitment, whereas low alternatives were linked to GCR commitment (Pistole, Roberts, & Mosko, 2010). In another study (Pistole, Roberts, & Chapman, 2010), relational maintenance strategies used before (e.g., telling your partner what you'll be doing) and during separation (e.g., displaying a picture of the partner) were higher in LDRs, where partners' separation is for days instead of hours; in contrast, shared tasks were higher in GCRs, where partners can physically spend time together or a near-daily basis if they so desire. Nonetheless, the current LDR knowledge base offers little understanding of the ways in which LDR partners are able to manage the frequent and sustained geographic separation.

Further, even if the structure (i.e., geographic distance) does not sabotage relational quality and success, LDRs do have unique challenges. For example, LDR partners' friends and family, like social scientists, generally assume that physical face-to-face contact and geographic proximity are necessary for close relationships to be formed and maintained (Stafford, 2005). Despite the research indicating that LDRs are typically

as satisfying and stable as geographically close relationships (Aylor, 2003; Dainton & Aylor, 2002; Guldner & Swensen, 1995; Lee & Pistole, 2012; Pistole, Roberts, & Chapman, 2010; Roberts & Pistole, 2009; Stafford & Merolla, 2007), such beliefs persist. Therefore, LDR partners are often confronted with questioning and a lack of support from family and friends (Bergen, 2010). More importantly for my study, by definition, LDRs partners have restricted opportunities for physical contact and communication. In comparison with GCR partners, LDR partners also have higher financial costs due to frequent travel and non-physical face-to-face communication, with the cost being a burden for some partners (Aylor, 2003). Therefore, it is important to better understand how LDRs work. The current knowledge base offers little understanding of the ways in which LDR partners are able to manage the frequent and sustained geographic separation, which means that researchers seem to be still lacking a full and coherent picture of LDRs. That is, counseling psychologists do not yet have a full knowledge base of the factors that are related to how, despite the challenges and stressors, LDR partners are able to maintain satisfying relationships across time. In this study, I focus on understanding how LDR partners manage the unique challenges (e.g., restricted physical contact and communication of a distance relationship.

Attachment Theory

In this section I provide an overview of attachment theory as well as a description of the manner in which individual differences in attachment (i.e., attachment styles) influence adult romantic relationships. Additionally, I provide a summary of how attachment theory provides a framework for conceptualizing LDRs.

Overview of Attachment Theory

Bowlby (1969/1982) proposed attachment theory to explain the emotional bonds that an individual forms to specific and non-replaceable persons (e.g., parents, romantic partners) across the life span. Although originally developed to explain an infant's bond with the primary caregiver, attachment theory applies to many emotionally important adult relational bonds, including best friends, special teachers, counselors, supervisors, and romantic partners (Bowlby, 1969/1982; Mikulincinер & Shaver, 2007). According to Bowlby (1969/1982), attachment is one of three behavioral systems, the attachment, exploratory, and sexual systems, that are inter-related. The exploratory system, which is the system that directs learning, work, and other such environmentally focused activity, functions when the attachment system is deactivated (i.e., is quietly functioning in the background monitoring attachment-relevant cues). The sexual system is relevant to the reproduction and sexual attraction aspects of a romantic relationship. In turn, the attachment behavioral system has an evolutionary purpose, which is to protect the person from real or symbolic threats to survival. Attachment, thus, refers to the person's motivation to maintain proximity to attachment figures (i.e., caregivers such as parents or a romantic partner), who are perceived as stronger and wiser (Bowlby, 1969/1982). Proximity to an attachment figure provides the person with a sense of protection and security. More specifically, to provide proximity and contribute to the person's attachment security, the attachment figure needs to be the kind of person who will be accessible when needed and consistently responsive in providing the attached person with safe haven (e.g., soothing and comforting when upset) and secure base (e.g., guidance and an anchor for exploratory behaviors such as learning) functions.

However, if encountering a threat, whether it is a physical or psychological threat or the threat of a separation from the attachment figure, a person experiences anxiety and distress, which activate the attachment system (Bowlby, 1969/1982, 1973). The person is then motivated to reestablish proximity to the attachment figure in order to regain the feeling of security that deactivates the attachment system. When in distress, a person will generally communicate a desire to re-gain proximity to the attachment figure by exhibiting proximity-seeking cues or attachment-related protest. In a romantic relationship, this protest could take the form of crying, holding on to the partner, or calling the partner (Bowlby, 1969/1982; Mikulincer & Shaver, 2007). Once the partner demonstrates accessibility and proximity by providing a safe haven (e.g., comforting) or secure base (e.g., guidance), the person experiences a renewed sense of security and protection, and, thus, the attachment system is deactivated.

Assuming the attachment figure is accessible and responsive, proximity can be maintained or reestablished in a number of physical, psychological, and symbolic ways (Mikulincer & Shaver, 2007). For instance, in a romantic relationship, the individual could obtain physical contact by to visiting the partner; that is, the person might walk or drive to the partner's location and obtain the safe haven or secure base function. This physical contact would, however, be more easily accomplished in a GCR than in a LDR. In a LDR, the person would generally be limited to some form of mediated communication, with hearing the partner's voice likely being needed for proximity when the person is very upset. Nonetheless, in adults, proximity seeking often takes place in a more psychological manner. For example, the individual could think about or recall a mental image of the partner, thereby gaining proximity from an internalized sense of the

safe haven or secure base functions. Finally, the person could use symbols, such as pictures or gifts, to regain proximity. For example, the person might maintain proximity by placing a picture of the romantic partner in a visible place and look at the picture to activate the safe haven or secure base functions. All of these approaches maintain or regain proximity to the partner, with only the physical method requiring the partner to be relatively nearby (e.g., within a one or two hour drive). Further, for all approaches, once the sense of security is restored and the attachment system is deactivated, an individual is able to engage in activities related to other behavioral systems (e.g., sex, work).

Individual Differences in Attachment

According to Bowlby (1973) individual differences in attachment behavior or attachment styles develop as the result of early interactions with an individual's primary caregiver. Based on these interactions, individuals develop internal working models (IWMs) or mental representations that include cognitive and emotional expectations of and beliefs about attachment relationships. Although IWMs develop in early attachment relationships, they are internalized and used like templates in later attachment relationships, including romantic relationships (Bowlby, 1973; Mikulincer & Shaver, 2007). That is, once developed in the early interactions with caregivers, IWMs guide an individual's expectations of attachment figures, attention to attachment cues, emotional regulation, and behavior throughout life (Bowlby, 1973; Mikulincer & Shaver, 2007). Further, attachment patterns or styles, which reflect the IWMs, are relatively stable from childhood into adulthood, though new experiences can lead changes in attachment styles (Bowlby, 1973; Fraley, 2002; Hamilton, 2000; Iwaniec & Sneddon, 2001; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000).

Attachment theorists and researchers have developed several models for conceptualizing and measuring attachment patterns in individuals. Two frequently used models are the Bartholomew and Horowitz (1991) four-category model and the Mikulincer and Shaver (2007) two-dimensional model. These models are generally thought to be compatible with one another (Bartholomew & Shaver, 1998), because statistical analysis indicates that two dimensions (i.e., anxiety and avoidance) underlie the various attachment models (Brennan, Clark, & Shaver, 1998). The anxiety dimension refers to the person managing attachment-related affect through a hyperactivated attachment system; the system is chronically activated with the person clinging to and continually seeking proximity to the partner (Mikulincer & Shaver, 2007). The avoidance dimension refers to the person managing attachment-related affect through a deactivated attachment system; the system is deactivated with the person suppressing attachment-related needs and seeming to be unconcerned with proximity to the partner. Although these two dimensions, when crossed and rotated, underlie the Bartholomew and Horowitz (1991) four-category model (Bartholomew & Shaver, 1998; Brennan et al., 1998), the dimensional model refers to high or low levels of anxiety or avoidance and accounts for secure attachment as low levels of both anxiety and avoidance. Therefore, secure attachment cannot be directly examined using the two dimensional model. In contrast, the four-category model provides a useful conceptualization for describing individual differences in attachment, and because I am interested in secure attachment and various forms of insecure attachment, as is explained below, I am using the Bartholomew and Horowitz (1991) four-category model in this study. Therefore, I provide a general

overview of the model and its link to the dimensions before describing each of the attachment styles.

In developing her prototypical attachment style model, Bartholomew (1990) conceptualized four categories based on crossing Bowlby's (1969/1982) attachment models of (a) positive or negative beliefs about the self being loveable, and (b) positive or negative beliefs about the partner being the kind of person who will be accessible when needed. The four categories, as described below, are secure, dismissing, preoccupied, and fearful (Bartholomew & Horowitz, 1991). The dismissing, preoccupied, and fearful attachment styles are considered to be normative but insecure attachment styles. In relation to the underlying dimensions, secure attachment is consistent with both low anxiety and low avoidance, dismissing attachment reflects low anxiety and high avoidance, preoccupied reflects high anxiety and low avoidance, and fearful reflects high anxiety and high avoidance. The insecure attachment styles (i.e., preoccupied, dismissing, or fearful) develop when a person has a consistent history of childhood interactions that indicate the use of the primary, secure attachment strategy (i.e., approaching the attachment figure to regulate distress and seek guidance) is not successful in gaining proximity, providing safe haven and secure base functions, reducing attachment-related distress, and deactivating the attachment system (Bowlby, 1969/1982; Mikulincer & Goodman, 2006).

When the primary attachment strategy is not successful, the person adopts secondary attachment strategies, hyperactivation or deactivation of the attachment system. Hyperactivating strategies involve constant activation of the attachment system, leading the person to continuously seek proximity to the partner (Mikulincer & Shaver, 2007).

However, the partner can rarely respond in a manner that results in the person deactivating the attachment system longer than momentarily; so the partner may experience the person's constant need for proximity as demanding or coercive. The attached person, in contrast, views the partner as able to fulfill attachment functions but inconsistent in responding to attachment signals, thereby leading to ambivalent and angry responses in conjunction with clinging to the partner. In the opposite direction, the deactivation strategy involves inhibiting attachment system activation and usually results in a sense of compulsive self-reliance or seeming detachment (Bowlby, 1973). Although the person remains attached, he or she does not trust the attachment figure to respond to attachment-related cues and, instead, attempts to suppress internal attachment signals and deal with threats alone (Bowlby, 1973; Mikulincer & Shaver, 2007). Overall, secure attachment is related to more optimal relational outcomes, including relationship stability and satisfaction; whereas attachment insecurity is related to less optimal relationship outcomes, such as lower stability and satisfaction (Mikulincer & Goodman, 2006; Mikulincer & Shaver, 2007). In providing an understanding of the various styles, I describe their meaning by integrating the conceptual meaning across various models and measures, using the Bartholomew and Horowitz (1991) terminology. I end each style description with a LDR proximity-seeking example.

Secure attachment. With a secure attachment style, the person has a positive view of the self and the partner (Bartholomew & Horowitz, 1991), and regulates attachment affect by approaching the partner when upset or needing guidance, that is, to obtain proximity and the safe haven or secure base functions (Mikulincer &Shaver, 2007). When securely attached, the person feels worthy of love and expects the partner to be

accepting and responsive (Bartholomew & Horowitz, 1991; Bowlby, 1969/1982). The securely attached notice attachment cues and regulate attachment-related emotion using the primary attachment strategy (i.e., proximity seeking) as needed. Because they are confident in the self and the relationship, the securely attached appropriately rely on the partner to fulfill safe haven (e.g., comforting) and secure base (e.g., guidance) functions. With regard to proximity seeking, with secure attachment, the person easily uses psychological and symbolic proximity seeking strategies, such as bringing to mind mental images of the partner, in order to self-soothe when separated from the partner (Mikulincer & Shaver, 2007). For example, if under stress, a securely attached person may send a text message to the partner in an attempt to gain proximity and a safe haven or secure base. If the partner does not respond immediately, the securely attached person is likely to recognize that the partner could be busy and read through old text messages as a symbolic alternative to gain proximity.

Dismissing attachment. With a dismissing attachment style, the person has a positive view of the self and a negative view of the partner (Bartholomew & Horowitz, 1991). That is, when dismissingly attached, the person feels worthy of love yet views others as inconsistently and insufficiently able to fulfill safe haven and secure base functions when needed. Dismissing attachment is characterized by the use of the deactivating emotion regulation strategy; so the dismissingly attached ignore and dismiss attachment related information, including negative emotions (Mikulincer & Shaver, 2007). Instead, the dismissingly attached focus energy on other areas, such as work or school. However, when under a high cognitive load, the deactivating strategy can fail, and the dismissively attached person will then engage in proximity seeking (Mikulincer

& Shaver, 2007). The dismissingly attached can "protect themselves against disappointment by avoiding close relationships and maintaining a sense of independence and invulnerability" (Bartholomew & Horowitz, 1991, p. 227). However, these individuals can and do become involved in attachment relationships; they are attached, though their behavior is guided by the deactivating strategy. With a dismissing attachment, the person may respond to a partner's non-response to a text message by engaging in an unrelated, and perhaps distracting, behavior, such as working on a project, thereby ignoring and defending against attachment system activation and distress.

Preoccupied attachment. With a preoccupied attachment style, the person has a negative view of the self and a positive view of the partner (Bartholomew & Horowitz, 1991). That is, when preoccupiedly attached, the person feels unworthy of love, while believing that the partner is able to satisfy safe haven and secure base functions. Typically, the person strives "for self-acceptance by gaining the acceptance of" (Bartholomew & Horowitz, 1991, p. 227) the partner, thereby relying on the partner for a sense of worthiness (Lopez & Brennan, 2000). With preoccupied attachment, the person is hyper aware of attachment-related cues and engages in near constant proximity seeking, which means the attachment system is nearly constantly activated. Although the partner may provide a secure base or safe haven behavioral response to cues, the attachment system is only temporarily deactivated. The continuous attachment system hyperactivation can lead to exaggerated and demanding attempts at proximity seeking. Further, with preoccupied attachment, the person may exaggerate threats, appear incompetent or helpless, and overly rely on the partner in an attempt to keep him or her constantly accessible (Mikulincer & Goodman, 2006). With a preoccupied attachment,

the person would likely perceive a partner's non-response to a text message as an attachment threat; and with the attachment system hyperactivated, repeatedly text or call the partner until establishing contact with the partner. The partner may, however, become annoyed with the constant proximity-seeking and clingy behavior.

Fearful attachment. With a fearful attachment style, the person has a negative view of the self and of the partner (Bartholomew & Horowitz, 1991). That is, when fearfully attached, the person feels unworthy of love and views others as inconsistently and insufficiently able to fulfill safe haven and secure base functions when needed. With a fearful attachment, the person seems to use both the hyperactivating and deactivating strategies to cope with attachment-related distress (Mikulincer & Shaver, 2007). The resulting behavior may appear inconsistent and somewhat chaotic. Consistent with a hyperactivated system, the person is vigilant to signs of attachment disruption and easily perceives impending separation, such as rejection, whether or not it is the partner's intent. Then consistent with a deactivated system, the person ignores attachment related information, such as negative emotions, and suppresses the attachment system (Mikulincer & Shaver, 2007). The fearfully attached have conflicting views of attachment relationships. On one hand, they desire to be involved in a serious romantic relationship; on the other hand, they fear rejection and are uncomfortable with relying on the partner. Thus, persons with a fearful attachment tend to avoid close romantic relationships in order to protect the self from rejection (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2007). In fact, in research, the fearfully attached, compared with the other three styles, report the lowest feelings of security and the most distress (Mikulincer & Shaver, 2007). With a fearful attachment, the person would likely perceive

a partner's non-response to a text message as an attachment threat, and thus, experience distress. However, the person would likely then act on this distress by suppressing the attachment system and distancing from the partner (e.g., ignoring a later text message) in order to avoid what is perceived as imminent rejection.

Summary

Although the majority of LDR research is atheoretical (see Dainton & Aylor, 2002 and Stafford, 2010 for exceptions), attachment theory may provide a unique framework for conceptualizing LDRs (Pistole, 2010), while simultaneously still applying to GCRs. As described above, attachment refers to the adult's tendency to seek proximity to a romantic partner in order to maintain a sense of security and protection; indeed, in romantic relationships, the partners provide protection, security, proximity, secure base, and safe haven functions to each other. From an attachment theory perspective, the LDR partners' physical separation, when they leave each other to return to their own residences that are physically distant (e.g., in different cities), activates the attachment system, because the distance means that the other partner is not likely to be physically accessible if needed. LDR partners protest the separation through attachment-related cognitive and emotional reactions, such as the loneliness (Guldner, 1996; Jackson et al., 2000), distress (Johnson, 1987), and sadness (Sahlstein, 2004) reported in LDR research. Further, exploratory behavior (e.g., learning) is inhibited until the person regains the proximity that deactivates the attachment system. For adults, proximity does not refer only to a physical distance and, instead, can be maintained through psychological and symbolic means, such as thinking of the partner or communicating with the partner via telephone calls or e-mails (Pistole, 2010). Although true for partners in LDRs and GCRs,

psychological/symbolic proximity-seeking can easily occur, despite distance. Indeed, LDR partners will seek proximity and deactivate the attachment system through technological communication, such as cell phones, e-mails for texts, and video chat.

Technology Use

In this section, I briefly provide an overview of technological communication and argue for the relevance of technology use to LDRs. Then, I describe current technological channels of verbal and written communication, including telephone, e-mail, SNSs, text messaging, instant messaging, and video chat. Within each type of communication, I address its general usage and any research pertinent to romantic relationships, and LDRs or GCRs specifically.

Overview of Technology Use

In this fast-paced and convenience-focused age of the internet, people are increasingly using technology and mobile devices to connect with information and with one another (Pew Internet, 2013b). Estimates are that as many as 85% of Americans frequently access the internet for informational activities such as reading the news, searching for product information, and getting directions (Pew Internet, 2013a). Additionally, as internet use has increased, the internet has also become an important tool for social activities and connecting with important others, as exemplified by SNSs such as Facebook; and people are increasingly using such technology in their personal and professional lives. Pew Internet (2013a) reported that of those Americans who access the internet daily, typical use included reading and sending email (59%), accessing SNSs (48%), sending instant messages (18%), and making online phone calls (4%). Although the internet has created an opportunity for individuals to develop/engage in virtual

relationships, a majority of internet users (63%) connect with people they know in real life (Nielsen, 2012).

Although, in previous decades, the internet was only accessible via a wired hardline connection with a desktop computer, technology now allows people to access the internet via wireless laptop computers, tablets, and smartphones, thereby creating new opportunities for the use of technology in interpersonal relationships. Brenner (2013a) reported that 91% of American adults own a cell phone, with as high as 56% owning a smart phone. These numbers are likely even higher for younger generations, with an estimated 80% of young adults (ages 18-29) owning smartphones (Brenner, 2013a). Cell phones, and the opportunities for connection they provide, are becoming an integral part of many people's lives. In fact, 29% of cell phone owners would describe their cell phone as "something they can't imagine living without" (Smith, 2012, para. 1). Such descriptions may also speak to the integral role technology plays in person's everyday interactions with important others, stimulated by improvements in the accessibility and convenience of the internet and cell phones. It is now possible to communicate via written, so-called snail mail and telephone conversations, and it is also possible to instantaneously send e-mails, carry on immediate conversations via texting and instant messaging, and come face-to-face with a physically distant person (e.g., friend, relationship partner, family member, colleague) via video chatting. Each of these technological pathways provides a new potential line of communication between two or more people and creates increasing complexities in interpersonal relationships, including people's most important relationships.

Relevance of Technology Use to LDRs

Technology and its uses in romantic relationships may be key to understanding today's LDRs, because in the past, LDRs were frequently characterized by constraints and limitations on partners' communication (Stafford, 2005). Before the advent of the internet and the widespread use of the cell phone, LDR couples were limited to non-digital forms of communication, such as long-distance telephone calls and written letters (Aylor, 2003). Such communication required time, coordination, and monetary costs. For example, long distance telephone calls required coordination, because a person had to be home to place the call and the partner had to also be home to receive the call; and people incurred monthly long distance charges, with the cost usually based on the number of calls and the length of the calls. In addition, letters had to be written, mailed, and delivered with a person waiting while the partner wrote a response and mailed it for delivery a few days later. Today, with increasingly accessible and affordable technology, LDR partners may be more able to communicate regularly (Rohfling, 1995), and the communication channels available to them may also be more likely to promote support and a shared presence (Greenberg & Neustaedter, 2011; Johnson, Haigh, Becker, Craig, & Wigley, 2008). Current technological communication includes telephone calls, e-mail messages, SNSs, text messaging, instant messaging, and video chat.

Communication Channels

People, including romantic partners, have used telephones to communicate with one another for over a century. In its most basic form, a telephone can be used to synchronously exchange verbal, auditory messages with another person. Although telephones have been salient to communication in all forms of relationships, the

proliferation of the cell phone has influenced the ease of this communication method for LDR partners. Telephone conversations used to occur from a landline in the kitchen, for example, but now occur in the car, the coffee shop, the beach, and where ever the person is. Additionally, the cell phone provides more affordable long-distance communication. In previous decades LDR partners reported long-distance phone bills, which were from landlines, as a burden and challenge (Aylor, 2003). Now, long-distance calls using a cell phone are typically included in the cost of the phone plan and additional cost does not accrue from using the phone for long-distance phone calls. This change is important. Earlier research (Stafford & Reske, 1990) reported that only 45% of LDR partners' communication occurred over the phone, whereas current research (Dainton & Aylor, 2002) indicates that on average LDR partners communicate via telephone five to six days per week. For example, in their LDR, Jamie and Leslie may have an established daily phone call routine before bed, and may also call one another during down time, such as in between classes or during a long drive. Despite more frequent use of telephone calls, research has yet to examine how telephone communication influences LDRs (Stafford, 2005).

Similar to the telephone, written communication has undergone a major change in the past several decades. Rather than penning a letter and waiting several days for it to be transported, e-mail now provides romantic partners with the ability to type a letter or shorter message on a computer or phone and almost instantaneously have it delivered the recipient's inbox. E-mail is fast and is generally free of cost, though some cell phone plans add a specific but relatively low charge (e.g., $15/month) for connecting to the internet. Further, the recipient can access the message when convenient. Although the

majority of email usage is for corporate purposes (Radicati Group, 2012), when accessed in the home, social relationships are the most common reason for email use (Stafford, Kline, & Dimmick, 1999), and approximately 11% of college students reported using email to contact romantic relationship partners (Jones, 2002). For example, Jamie may send an email to Leslie to say "good morning" after arriving at work, and Leslie can then review the email an hour later while getting ready for class. Additionally, the couple may use email to share pictures with one another or to brainstorm activities for an upcoming in-person visit. Nonetheless, few studies have specifically examined LDR e-mail use. In one exception, Johnson et al. (2008), examining college student email uses in a variety (e.g., familial, friendships, and romantic relationships) of long-distance and geographically close relationships, found few differences in email use by relationship distance, though the authors suggested the content and purpose of email may vary for persons in distance relationships. For example, LDR partners may use email to catch up on day-to-day activities, whereas GCR partners may use email to maintain the relationship (e.g., assure one another of their caring).

In recent years, technological advances in communication have also included a variety of SNSs (e.g., Facebook, MySpace, Pinterest, Twitter), which are also a written form of communication. However, SNSs allow a user to create and maintain a personalized profile, connect with friends via the public relationship, and view profiles of those friends to whom they are connected (Boyd & Elison, 2008). Additionally, users can usually communicate with others by posting on friends' profiles, sending messages similar to e-mails, and instant messaging. Brenner (2013b) estimated that 72% of U.S. internet users, including 89% of 18-29 year olds, also access SNSs; and these numbers

are rapidly increasing. SNSs provide romantic partners with a free method for connecting and communicating in both synchronous (i.e., instant messaging) and asynchronous (i.e., posts and messages) manners. For example, Jamie and Leslie may both be online at their phones, computers, or tablets and exchange messages for a minute or two; or they may leave a Facebook message for the other to answer later. Additionally, Jamie may create a post about an event from the day (e.g., an important meeting), and Leslie may comment on this post to provide support and encouragement. Nonetheless, based on a PsycINFO search, I could find no research that address use of SNS in LDRs or GCRs.

Another recent development, text messaging, or texting, has become a dominant form of communication, especially for young adults (Drouin & Landgraff, 2012). Texting involves using the cell phone to send a written message to another individual's cell phone. Similar to e-mail, the message is delivered almost immediately, and the recipient can view the message when it is convenient. More specifically, text messaging can be synchronous if suiting both partners' schedules or responses can be delayed when one partner is occupied. For example, Jamie and Leslie may know the times (e.g., between classes or during a lunch break) that each is briefly available, and they may exchange texts for 5 to 10 minutes. At other times, Jamie may send a text to Leslie and wait for a response until Leslie is out of class. Further, like e-mail, the cost in included in the cell phone monthly charge or is available at an additional low cost (e.g., $20/month for unlimited texting). Texting has become a normal part of everyday life for many cell phone users. Lenhart (2010) notes that nearly three quarters of adults use texting, and these users send an average of 10 messages per day. Additionally, young adults may text more frequently than older adults, with 18% of 18 to 24 year olds reporting that they send

more than 200 text messages daily (Lenhart, 2010). Texting has become an integral method for partners' communication; in one study, 98% of college students reported using texting to communicate with their romantic relationship partner (Drouin & Landgraff, 2012).

Similar to text messaging, instant messaging (IM) allows partners to communicate via internet programs by exchanging written messages. Generally, IM occurs in a synchronous and conversation-like fashion with both users being active at their computers. For example, Jamie and Leslie may both sign into Facebook or Skype after returning home for the evening and carry on an IM conversation while eating dinner and watching TV. Most IM programs are free for users, and IM is often included as an function in SNSs. Estimates indicate that 42% of U.S. internet users engage in IM, with as many as 12% IM daily (Shiu & Lenhart, 2004). My latest PsycINFO search revealed no publications addressing how LDR or GCR partners use IM to communicate with each other.

Lastly, online video chat provides a way for internet users to see another person face-to-face across distance while physically separated. Through video chat programs (e.g., FaceTime, Skype), the person places an internet-based video call to the partner, and if both partners are available, they can see one another via a web camera as they talk to each other. These programs are available on computers, tablets, and smart phones. In a recent study, Greenberg and Neustaedter (2011), in qualitative interviews with LDR couples, found that partners use video-chatting to "hang out" with each other by leaving the video-chat windows open for extended periods while they conduct everyday activities (e.g., cooking, doing homework, watching TV). The researchers concluded that this

experience allowed couples to feel connected to their partners and involved in their everyday lives. For example, Jamie and Leslie may have a favorite television show that they have agreed to watch together on a weekly basis. Before the start of the show, Jamie places a video call to Leslie, and they watch the show together with the ability to see each other's immediate reactions to the show's events.

In summary, current research has focused on how people are using technology to communicate. There is little research, however, that addresses people's use of multiple communication channels or how technological communication influences romantic relationships and their outcomes (e.g., satisfaction). In the only study I could find, Dainton and Aylor (2002), examining multiple technological communication channels (i.e., telephone, internet, and written letters) in LDRs, found (a) a positive association between oral channels, that is, telephone use and face-to-face contact; (b) a positive association for written channels, that is, internet use, as would be consistent with email or SNSs, and written letters sent through the postal system; and (c) a negative correlation between oral and written channels. Notably, all communication types were positively related to relationship maintenance. Clearly more research is needed that combines a wide array of technology channels in examining LDRs and relationship outcomes.

Sexual Satisfaction

Although historically sexual satisfaction has not been effectively conceptualized and measured (Lawarance & Byers, 1995, 1998), current research has more structure and consistency in terms of the meaning of sexual satisfaction. In general, sexual satisfaction refers to the individual emotional appraisal of the sexual relationship with the partner. More formally, sexual satisfaction is "an affective response arising from one's subjective

evaluation of the positive and negative dimensions associated with one's sexual relationship" (Lawrance & Byers, 1995, p. 268). The overall evaluation results from the person balancing the perceived rewards (i.e., pleasurable and gratifying experiences) and costs (i.e., effortful or painful experiences) of the sexual relationship. Based on this definition, sexual satisfaction will be positive or satisfying when the perceived rewards outweigh the perceived costs and will be negative or dissatisfying when the perceived costs outweigh the perceived rewards. Further sexual satisfaction will be higher when rewards are higher and costs are lower. In general, sexual satisfaction is thought to be an indicator of relationship quality (Sprecher, 2002), and when sexual satisfaction is high, partners are more likely to be satisfied with the relationship overall (Byers, 2005; Sprecher, 2002).

In this study, I am interested in sexual satisfaction in relation to the sexual behavioral system (Bowlby, 1969/1982; Mikulincer & Goodman, 2006; Mikulincer & Shaver, 2007). In romantic love, the sexual behavioral system functions in conjunction and coordination with the attachment behavioral system in guiding human behavior. Like the attachment system, the sexual system has an ultimate evolutionary goal, which is to promote the continuation of the person's genes through the reproduction that results from sexual intercourse with a member of the opposite sex. The sexual system is also pertinent to the formation and maintenance of romantic relationships (Mikulincer & Goodman, 2006; Shaver et al., 1988). For example, research indicates that mutually gratifying sexual interactions promote both positive reactions, including love, excitement, and relaxation, and positive relationship outcomes, including satisfaction and stability (Mikulincer & Goodman, 2006; Sprecher & Cate, 2004). Additionally, individuals may

engage in sexual activities to meet attachment-related needs, such the emotional closeness, reassurance, and stress reduction that accrue from the attachment system's safe haven function (Davis, Shaver, & Vernon, 2004; Mikulincer & Goodman, 2006). Therefore, in a love relationship, which involves the confluence and coordination of the attachment and sexual systems (Shaver et al., 1988), sexual system activation may be managed with attachment-related affect management, such as the hyperactivating and deactivating strategies.

For example, the dismissingly attached, who have a deactivated attachment system and so ignore and suppress attachment-related emotion, may dismiss or ignore their own sexual needs (Mikulincer & Shaver, 2007). When they do engage in sexual behaviors, the dismissingly attached may disregard the partner's feelings, because of using sex to gain social prestige, to increase control over the partner, or to enhance personal self-esteem (Mikulincer & Shaver, 2007). On the other hand, the preoccupiedly attached, who have a hyperactivated attachment system, likely seek sex to fulfill unmet attachment-related proximity, safe haven, and secure base functions. They may, however, be ambivalent about sex, because of the negative model of self. With a preoccupied attachment, the person may doubt his or her sexual attractiveness and worry about the meaning of the partner's sexual responsiveness, that is, whether the response is to the self or to the partner's own sexual needs (Mikulincer & Shaver, 2007). These concerns may lead to less pleasurable sexual experiences, interpersonal difficulties with sexual partners, and ambivalence about engaging in sexual behaviors (Mikulincer & Shaver, 2007).

For LDR partners, the restricted physical interaction could pose a unique challenge to sexual satisfaction (Rhodes, 2002), though in a PsycINFO search I found no

studies that directly examined LDR sexual satisfaction. In related qualitative research, LDR partners reported dissatisfaction with the use of video chat technology to fulfill their sexual needs (Neustaedter & Greenberg, 2011). For example, partners were hesitant to engage in video chat sexual activities due to shyness, privacy concerns, or not viewing sex as a core need (Neustaedter & Greenberg, 2011). Further, individuals who did engage in video chat sexual activity reported feeling additional longing afterward due to a lack of physical contact. This latter report is consistent with (a) the loneliness that LDR partners experience after visits (Guldner, 1996) and (b) an attachment perspective, which suggests that sexual activities at a distance may remind partners of the lack of physical proximity and the limited physical accessibility of the partner, thereby activating the attachment system. Clearly, the reports alone indicate that further research is merited.

Relationship Satisfaction

Relationship satisfaction is one of the most frequently studied variables in romantic relationship research (Hendrick, 1988). In general, satisfaction refers to the balance of positive and negative affect that a person experiences in the relationship (Rusbult, Martz, & Agnew, 1998). That is, when positive affect outweighs negative affect, satisfaction should be higher (vs. lower). In other words, satisfaction provides a general view of the quality of the relationship. Although relationship satisfaction is contingent on more than the attachment functions, satisfaction would include the person's appraisal of his or her attachment functions being met through the relationship (Mikulincer & Shaver, 2007). For instance, the person would view the relationship as more satisfying when the partner is accessible and responsive to providing the proximity, safe haven (i.e., soothing), and secure base (i.e., guidance) functions, that would be experienced as affection,

comfort, and support. In general, relationship satisfaction has been studied as an outcome variable with several process variables (e.g., love, commitment) predicting its magnitude; however, relationship satisfaction likely functions as a feedback loop process, with relationship satisfaction level in turn affecting the process variables that initially predicted it (Hendrick, Hendrick, & Adler, 1988). Rather than being static, relationship satisfaction fluctuates across time, being sometimes higher and sometimes lower, with current interactions and other process variables, such as communication or sexual satisfaction, influencing the level of satisfaction.

In romantic relationship studies, relationship satisfaction is generally used as an outcome variable, with a wide array of variables associated with its direction (i.e., positive or negative) (Hendrick et al., 1988). For example, love attitudes (e.g., passionate love, friendship-based love; Hendrick et al, 1988) and commitment (Le & Agnew, 2003; Rusbult et al., 1998) are positively associated with relational satisfaction, whereas relationship sacrifices (Ruppel & Curran, 2012) and depression (Cramer, 2004) are negatively associated with satisfaction. In terms of my study, secure attachment is positively related to relationship satisfaction, with fearful attachment reporting the lowest levels of relationship satisfaction (Mikulincer & Shaver, 2007). Further, as noted above, LDR and GCR partners generally report similar levels of relationship satisfaction (Dellmann-Jenkins et al., 1994; Guldner & Swensen, 1995; Holt & Stone, 1988; Pistole, Roberts, & Chapman, 2010; Roberts & Pistole, 2009; Stafford & Merolla, 2007; Stafford & Reske, 1990).

Rationale

In this study, I am interested in better understanding LDRs. Therefore, I am primarily interested in testing the unique contribution of attachment style, technology channel use, and sexual satisfaction to relationship satisfaction in both LDRs and GCRs. I examine a GCR model, as well as a LDR model, so that I can see if the relationship variables contribute in a similar or different manner in LDRs and GCRs. These findings contribute to the LDR literature by providing knowledge on ways LDRs are unique. I also have two secondary interests. First, because of the paucity of knowledge on attachment and technology use, I examine whether there are attachment style differences in (a) overall technology use and (b) specific technology channels use. I am also interested in whether there are specific technology channel preferences within each attachment style. These findings contribute to the attachment literature. Second, because of the dearth of studies on technology use and LDRs/GCRs, I examine whether there are LDR/GCR differences in (a) overall technology use, and (b) specific technology channels use. The findings contribute to the literature on how relationships work, be they LDRs or GCRs. In this section, I discuss the reasoning for the hypotheses. I focus first on my primary hypothesis. Then I address the expectations for my second and third hypotheses. The research questions (RQs) and hypotheses are stated in a separate section following the rationale.

Contributions to Relationship Satisfaction

The expected unique contributors to relationship satisfaction are discussed in separate subsections. I begin with attachment and relationship satisfaction, followed by

technology use and relationship satisfaction; I end with sexual satisfaction and relationship satisfaction.

Attachment and relationship satisfaction. The secure, dismissing, preoccupied, and fearful attachment styles are related to relationship satisfaction in different ways. In both dating and married relationships, research, which is presumably based on GCRs, consistently finds higher satisfaction for the securely attached when compared to the dismissing, preoccupied, and fearful styles (Mikulincer & Shaver, 2007). Consistent with these research findings, for GCRs, I reason that the securely attached are satisfied in the relationship, (a) because of perceiving the partner as the kind of person who provides attachment proximity and safe haven and secure base functions when needed and (b) because approaching the partner for proximity and the safe haven and secure base functions when stressed is successful in deactivating the attachment system and reactivating the exploratory or other (e.g., sexual) system. Therefore, I expect that secure attachment will explain positive and unique variance in relationship satisfaction. The dismissingly attached may not be as satisfied with the relationship as the securely attached. They have a negative view of the partner, dismiss and suppress attachment cues, and over-rely on the self. Consistent with these tendencies, previous research findings indicate a negative relationship between dismissing attachment and relationship satisfaction (Mikulincer & Shaver, 2007; Roberts & Pistole, 2009). That is, dismissing attachment is consistently linked to low relationship satisfaction. Based on this reasoning, I expect dismissing attachment may explain negative and unique variance in relationship satisfaction. The preoccupiedly attached are constantly concerned about attachment threats and have a hyperactivated affect management strategy that keeps the person

focused on the partner's proximity. Even with a belief that the partner is able to meet attachment functions, the preoccupiedly attached may be dissatisfied with the relationship, because proximity and the attachment functions are not constantly met, leaving the person feeling disappointment with and anger at the partner who is perceived as inconsistently proximal and accessible for meeting the attachment functions. Previous research findings indicate a negative relationship between preoccupied attachment and relationship satisfaction (Mikulincer & Shaver, 2007; Roberts & Pistole, 2009). That is, preoccupied attachment is consistently linked to low relationship satisfaction. Based on this reasoning, I expect preoccupied attachment may explain negative unique variance in relationship satisfaction. The fearfully attached are highly sensitive to attachment-related threats, but they also suppress attachment-related emotions and view the partner as rejecting and unwilling or unable to fulfill the attachment functions. Because the negative view of the partner and the fears of rejection may detract from relational satisfaction, I expect fearful attachment may explain unique negative variance in relationship satisfaction. Therefore, in summary, I expect that secure attachment will contribute positively to relationship satisfaction, whereas dismissing, preoccupied, and fearful attachment will contribute negatively to satisfaction.

Although I expect the reasoning above to explain GCR satisfaction, it is unclear whether the attachment styles function similarly in LDRs and GCRs. It could be that knowing the partner is physically distant influences the person's expectations for proximity and responsiveness to attachment cues. I would, however, expect secure attachment to function similarly in LDRs and GCRs, because, when distressed, the securely attached seek proximity to a positively viewed partner. I also expect dismissing

attachment to function similarly in LDRs and GCRs. In examining attachment in LDRs and GCRs, Roberts and Pistole (2009) concluded from their results that a negative view of the partner, which is characteristic of dismissing attachment, was significantly and negatively related to relationship satisfaction in both LDRs and GCRs. In addition, dismissing attachment is characterized by a deactivating affect management style and suppressing the attachment system. This suppression can facilitate focusing on work and being productive, and the physical distance may function to maintain a more distant and preferred version of proximity, even though the distance may exceed the acceptable range of proximity if the person is under a cognitive load. In this circumstance, the attachment system would be activated (Mikulincer & Shaver, 2007), with the person desiring proximity and safe haven and secure base functions from the partner. Once proximity is re-established, the attachment system would be deactivated, and the person would return to suppressing attachment information. Therefore, I expect dismissing attachment to contribute negatively to relationship satisfaction in LDRs. On the other hand, preoccupied attachment may function differently in LDRs. The preoccupiedly attached, with their continuously activated attachment system, may rationalize the partner's non-constant proximity as due to the geographic distance. If so, then the partner's non-constant responsiveness may not inhibit satisfaction as much as it does in GCRs, and preoccupied attachment may contribute positively to satisfaction. Therefore, I expect preoccupied attachment to contribute positively to relationship satisfaction in LDRs. Finally, for fearful attachment, a negative view of the partner, as is characteristic of fearful attachment, was significantly and negatively related to relationship satisfaction in LDRs; and a negative model of the partner and a negative model of the self (i.e., fearful

attachment) were significantly and negatively related to relationship satisfaction in GCRs but not in LDRs (Roberts & Pistole, 2009). Fearful attachment is characterized by both sensitivity to the partner's possible rejection and maintaining proximity at a relatively greater distance from the partner when concerned about potential attachment disruption. For example, the fearfully attached may respond to lapses in communication with the partner as a potential rejection and attachment threat, but in LDRs, the fearfully attached, who have negative view of self, may continue to attribute the partner's non-responsiveness to the self. If so, they would likely be dissatisfied with relationship, even though the physical distance may function to maintain a distant proximity that is preferred. Thus, I expect fearful attachment to contribute negatively to LDR relationship satisfaction.

In summary, I expect that the secure attachment may explain unique positive variance in relationship satisfaction in both GCRs and LDRs. I expect that dismissing attachment will contribute unique negative variance in both GCRs and LDRs. I expect that preoccupied attachment will contribute unique negative variance in GCRs and unique positive variance in LDRs. Finally, I expect that fearful attachment will contribute unique negative variance in GCRs and LDRs.

Technology use and relationship satisfaction. Technology use may also be related to relationship satisfaction. More specifically, technology use reflects a unique form of communication between partners that contrasts with non-technological face-to-face or physical (e.g., touching) communication. Theoretically, from an attachment perspective, communication is a way to maintain or re-establish attachment-related proximity. Technologically mediated communication would, therefore, function as a way

to maintain or re-establish proximity. To the extent that technology is utilized to maintain proximity and fulfill safe haven and secure base functions, technology use through the various specific channels may be positively related to relationship satisfaction. Only a handful of romantic relationship studies have examined technology use. In general, frequent technology use has been positively associated with love (Jin & Peña, 2010), commitment (Dainton & Aylor, 2002; Jin & Peña, 2010), trust (Dainton & Aylor, 2002), and intimacy/support (Morey et al., 2013; Neustaedter & Greenberg, 2011), and has been negatively associated with relational uncertainty (Jin & Peña, 2010). In the only study measuring relationship satisfaction, Morey et al. (2013) found that both telephone and texting use were positively related to relationship satisfaction, though neither SNS nor e-mail use were significantly related to satisfaction. Because this research was conducted with GCRs, in my study, I expect technology channel use will contribute to relationship satisfaction similarly in GCRs. More specifically, because GCR partners can maintain proximity physically, more distant technology forms (i.e., email and SNS) may not be as important to attachment functions (e.g., proximity maintenance), but the technology channels high in synchronicity and sensory input, particularly telephone, texting, IM, and video chat, may contribute positively to GCR satisfaction.

For LDRs, the physical separation, which means that partners are likely not physically accessible when needed, may influence technology use with regard to relationship satisfaction. In GCRs, partners can see each other and communicate physically when desired; so they may maintain proximity by watching movies or TV together and talking over meals or coffee or while doing homework. In LDRs, people have to communicate and maintain day-to-day proximity via technological

communication and psychological/symbolic means. Because of this restricted physical communication, technology use through the various channels may have a unique contribution to LDR relationship satisfaction (Dainton & Aylor, 2002; Stephen, 1986). In LDR research, qualitative studies of technology use indicate that technology promotes open communication between partners (Aguila, 2008; Neustaedter & Greenberg, 2011). For example, in an interview study of LDR couples using video chat technology, several participants reported using Skype to discuss relationship issues and noted that this particular technology channel increased their ability to have difficult conversations or arguments (Neustaedter & Greenberg, 2011). In addition, Dainton and Aylor (2002) found a positive association between frequency of telephone use and LDR satisfaction. These findings are consistent with technology channel use being a way for LDR couples to maintain proximity and contact over geographical distance. Indeed all technology channels may contribute to LDR satisfaction. In particular, I expect that all technology channels will contribute significantly to LDR relationship satisfaction. However, I expect that the sensory channels (i.e., phone, video chat) function to maintain proximity and so will contribute more positive variance to LDR satisfaction than will the more distant technology channels (i.e., email, SNS). Therefore, I expect that the technology channels' contribution to relationship satisfaction may differ in LDRs and GCRs, with the sensory channels (i.e,. phone, video chat) contributing more satisfaction variance to LDRs than to GCRs.

Sexual satisfaction and relationship satisfaction. Sexual relations are important in romantic relationships, and research has consistently demonstrated a positive relationship between sexual satisfaction and relationship satisfaction (Byers, 2005;

Haavio-Mannila & Kontula, 1997; Sprecher, 2002). Nonetheless, for LDR partners, the ability to have physical sexual contact is limited to the times that they physically visit one another. Consistent with previous research, I expect that sexual satisfaction would be positively related to relationship satisfaction in GCRs. However, no studies have directly examined the association of sexual satisfaction and relationship satisfaction in LDRs. It could be that limited in-person contact negatively influences LDR sexual satisfaction, because partners are not able to engage physically in sex as often as they would like. On the other hand, sexual satisfaction may be less important to LDR partners and may not influence relationship satisfaction negatively, even if sexual satisfaction is lower in LDRs than GCRs. For example, in a study of video chat use in LDRs, participants reported refraining from engaging in sexual activity through technology, because they did not perceive it as a core need in their relationship (Neustaedter & Greenberg, 2011). Therefore, sexual satisfaction may not contribute significantly to LDR relationship satisfaction. If the reasoning presented above is accurate, then sexual satisfaction will contribute positively to GCR satisfaction and may not contribute significantly to LDR satisfaction.

Attachment and Technology Use

As noted above, I am also interested, though secondarily, in the relatedness of attachment styles and technology use. Because technology use can be conceptualized as a form of proximity seeking, people of differing attachment styles likely utilize technology in unique ways. First, there may be attachment style differences in the total frequency of technology use. For example, in an attempt to constantly remain in proximity to the partner, persons with a preoccupied attachment may use technology at a higher rate than

securely, dismissingly, or fearfully attached. On the other hand, persons with a dismissing or fearful attachment style, who suppress the attachment system and behave in a manner to maintain more distant proximity from the partner, may use technology at a lower rate than preoccupied and securely attached persons. That is, I expect that persons with a preoccupied attachment will report higher levels of technology use than the securely attached, with the dismissing and fearfully attached reporting lower levels of technology use than the secure and preoccupied styles.

Second, there may be attachment style differences in the specific technological channels use. Each channel creates a unique communication experience, with varying degrees of synchronicity and sensory input. For example, when an individual sends an email to the partner, the partner is not required to be available at the time the email is sent, the partner responds at his or her leisure, and the email merely involves an exchange of text. On the other hand, when an individual video chats with the partner, both parties must be present, and the synchronous exchange involves both auditory and visual cues. Several recent studies have examined the relationship between attachment style and technology channel use, specifically for telephone calls and texting. For telephone calls, findings indicated that a negative view of the partner and a tendency to maintain a distant form of attachment-related proximity through use of a deactivating affect management strategy (i.e., dismissing and fearful) is negatively associated with calling the partner (Jin & Peña, 2010; Morey et al., 2013; Weisskirch, 2012). In contrast, Jin and Peña (2010) also found an interaction effect with persons with a secure and preoccupied attachment reporting making the highest number of phone calls, followed by the fearfully, and then the dismissingly attached making the least number of phone calls. In addition, Weisskirch

(2012) found a positive association between a negative view of the self (i.e., preoccupied and fearful attachment) and text messaging, whereas Drouin and Landgraff (2012) found that a negative view of the partner (i.e., dismissing and fearful) was negatively related to text messaging. Because these results are mixed and because there are not studies examining attachment style and the use of a variety of technology channels use, additional study is needed. Based on the findings described above and attachment theory, I expect that the securely attached will use more of each technology channel than the dismissingly and fearfully attached; and the preoccupiedly attached will use channels with high sensory input (i.e., telephone and video chat) more than the securely, dismissingly, and preoccupiedly attached.

Third, there may be differences within attachment style for preferred technology channel. Persons with differing attachment styles may have varying preferences for the synchronicity and sensory connections provided by the various technology channels. It seems likely that the securely attached may use all channels equally, with the channel used being determined by the circumstances. For instance, knowing the partner is in class, the securely attached person may choose to leave a text or email message that can be received at a later time; or when feeling upset and knowing the partner is available, the securely attached may prefer the proximity and soothing provided by a phone call that involves hearing the partner's voice or by Skype that involves viewing the partner, albeit electronically. Further, persons with a preoccupied attachment style, who seek constant proximity to the partner, may prefer a channel that is high in synchronicity and sensory input (e.g., video chat), because these channels provide a sense of proximity and accessibility for soothing via the partner's voice and image. Contrastingly, persons with a

dismissing or fearful attachment style, who prefer a more distant form of proximity to the partner, may be more likely to use a channel that involves less synchronicity and sensory input (e.g., email). Despite there being little research to use to predict the technology channel use difference for each attachment style, based on the reasoning, I expect that the securely attached will use all channels equally; the dismissingly attached will use distant channels (i.e., email, texting, SNSs) more frequently than channels high in synchronicity and sensory input (i.e., telephone, instant messaging, video chat); the preoccupiedly attached will use channels high in synchronicity and sensory input more frequently than distant channels; and the fearfully attached, similar to the dismissingly attached, will use distant channels more frequently than channels high in synchronicity and sensory input.

LDR/GCR Differences in Technology Use

Finally, an embedded assumption and aspect of my reasoning in this study is that LDR partners have to rely more than GCR partners do on technologically based communication. In order to test this assumption, I examine whether there are LDR/GCR differences in (a) the total use of technology and (b) the use of specific technology channels. Previous research reports inconsistent findings with regard to LDR and GCR differences in technology use. For example, Stafford and Reske (1990) found that LDR persons report a higher reliance on the telephone for communication than GCR persons. In contrast, Stafford and Merolla (2007) found no significant differences between LDR and GCR individuals for frequency of communication by email, instant messaging, or telephone. Based on these inconsistencies, additional study is needed. Because GCR partners have more frequent opportunities for communication via in-person contact than LDR partners, I expect that persons in LDRs (vs. GCRs) will be more likely to rely on

technology for communication and report higher technology use. In addition, I expect that persons in LDRs will report higher use of all technology channels, including telephone, email, SNSs, texting, instant messaging, and video chat.

Research Questions and Hypotheses

My purpose in this study to better understand LDRs. Therefore, a primary aim of the study is to examine how attachment style, technology use, and sexual satisfaction explain relationship satisfaction in LDRs. I also examine how these variables explain satisfaction in GCRs in order to understand the extent to which the LDR model may be unique. Secondarily, I am interested in possible attachment style differences in the use of technology and the use of specific technology channels. Finally, I have argued that LDR partners must rely more on technology for their communication, so I examine LDR/GCR differences in the use of technology and the use of specific technology channels. Therefore, I have developed three research questions (RQ1-RQ3) and three related hypotheses (H1-H3), with sub-questions and sub-hypotheses.

1. Do attachment style, technology channels use, and sexual satisfaction contribute to relationship satisfaction in LDRs, and is the satisfaction variance explained similarly in LDRs and GCRs?
2. Are there attachment style differences in (a) overall technology use and (b) use of specific technology channels?
3. Are there LDR/GCR differences in (a) overall technology use and (b) use of specific technology channels?

The hypotheses are:

H1a: Attachment style, technology channel use, and sexual satisfaction will contribute uniquely to LDR relationship satisfaction. More specifically, I expect secure attachment, preoccupied attachment, and technology use (i.e., phone, email, text, SNS, IM, video chat) to contribute positively to LDR relationship satisfaction; I expect dismissing and fearful attachment to contribute negatively to LDR relationship satisfaction.

H1b: The contribution of attachment style, technology channel use, and sexual satisfaction will explain relationship satisfaction variance differently in LDRs and GCRs. I expect that (a) preoccupied attachment will contribute positively to LDR relationship satisfaction and negatively to GCR relationship satisfaction, (b) technology use across all channels will contribute positively to LDR relationship satisfaction and only channels high in synchronicity and sensory input (i.e., telephone, texting, IM, video chat) will contribute positively to GCR relationship satisfaction, and (c) sexual satisfaction will contribute positively to GCR relationship satisfaction but will not contribute significantly to LDR relationship satisfaction.

H2a: There will be significant attachment style differences with regard to frequency of technology use. Persons with a preoccupied attachment will report higher frequency of technology use than the securely attached, with the dismissing and fearfully attached reporting lower levels of technology use than the secure and preoccupied styles.

H2b: There will be significant attachment style differences with regard to using specific technology channels. The securely attached will use more of each technology channel than the dismissingly and fearfully attached, and the preoccupiedly attached will use more sensory input channels (i.e., telephone and video chat) than the securely, dismissingly, and fearfully attached.

H2c: There will be technology channel preferences within each attachment style. The securely attached will use all channels equally. The dismissingly attached will use distant channels (i.e., email, texting, SNSs) more frequently than channels high in synchronicity and sensory input (i.e., telephone, instant messaging, video chat). The preoccupiedly attached will use channels high in synchronicity and sensory input more frequently than distant channels. The fearfully attached, similar to the dismissingly attached, will use distant channels more frequently than channels high in synchronicity and sensory input.

H3a: There will be a significant LDR/GCR difference with regard to frequency of technology use. Persons in LDRs will report higher levels of technology use than persons in GCRs.

H3b: There will be significant LDR/GCR differences with regard to using specific technology channels. Persons in LDRs (vs. GCRs) will report higher levels of technology use across all channels (i.e., telephone calls, email, SNSs, texting, instant messaging, and video chat).

CHAPTER III

METHOD

This chapter presents the data screening, participants, procedure, and instruments for the study. The primary purpose of this study is to examine the unique contribution of attachment style, technology use, and sexual satisfaction to relationship satisfaction in LDRs.

Participants

For this correlational research design, I cleaned the original 461 responses by visually identifying and deleting responses missing at least one full scale (n = 115). I also reviewed the data for participants who did not meet inclusionary criteria (i.e., being at least 18 years of age and identifying as currently in a dating relationship), and I consequently deleted 17 responses for identifying as single, not dating on the demographic questionnaire. This process left 329 responses. Next, using SPSS 22, I examined the data for multivariate and univariate outliers and assessed the normality of the distribution for each variable. Because the planned analyses involved comparing data between LDR and GCR groups, I conducted the examination of outliers and the distributions separately for each group. In assessing for multivariate outliers, no LDR responses exceeded the Mahalanobis Distance statistic. For the GCR group, I identified and, consequently, deleted three responses as exceeding the Mahalanobis Distance

statistic. Thus, 326 responses were included in the remainder of the preliminary analyses and the analysis of the hypotheses. In assessing for univariate outliers, 12 LDR responses were identified as extreme univariate outliers (>3IQR) for scores on TUQ-phone (3 responses), TUQ-text (6 responses), GMSEX (2 responses), and CSI-16 (1 response), and 5 GCR responses were identified as extreme univariate outliers for scores on TUQ-text (2 responses) and CSI-16 (3 responses). In order to preserve power while also reducing the influence of the univariate outliers, each of the extreme data points was truncated to the closest non-extreme value (Osborne & Overbay, 2004; Tabachnick & Fidell, 2007). Then, I examined the univariate normality and distribution of the sample. With regard to normality, the skewness and kurtosis statistics for most of the variables in both LDR and GCR groups were less than ±2, indicating that the distribution of the data was normal and appropriate for the planned analyses. However, in the LDR group, kurtosis statistics for GMSEX (skewness = -1.56, kurtosis = 2.01) exceeded ±2. Additionally, in the GCR group, kurtosis statistics for TUQ-text (skewness = -1.42, kurtosis = 3.02), TUQ-video (skewness = 1.66, kurtosis = 3.05), and GMSEX (skewness = -1.50, kurtosis = 2.66) exceeded ±2. Tabachnick and Fidell (2007) argue that in large samples ($N > 100$) underestimations of variance resulting from positive kurtosis vanish; therefore, I decided to retain the variables as described in the analysis despite slight deviations from normality. A power analysis for a hierarchical multiple regression with 11 variables indicated that a sample size of 59 is required to attain the desired power level of 0.80 with a .35 effect size and a .05 alpha level (Cohen, 1992; Soper, 2013). Because I analyzed LDR and GCR data separately, each group must contain 59 participants to attain the

desired power level; this requirement was exceeded for LDRs and GCRs, as is noted below.

The final sample (N = 326), with a mean age of 22.30 years of age (SD = 3.89, Mdn = 21.00, Range = 18 to 53), included 217 (66.6%) female and 108 (33.1%) male participants, with 1 participant (0.3%) not reporting a sex (Table 1). Regarding ethnicity, the sample consisted of 8 (2.5%) African/Black, Non-Hispanic; 29 (8.9%) Asian; 260 (79.8%) Caucasian/White, Non-Hispanic; 8 (2.5%) Latino(a)/Chicano(a); 1 (0.3%) Native American/American Indian; 1 (0.3%) Pacific Islander; 16 (4.9%) Multiracial/Multiethnic; and 3 (0.9%) Other. In addition, 24 (7.4%) identified as an international student, with the most frequently identified countries of origin being China (n = 7) and India (n = 5). Of the international students, 14 (58.3%) reported having family or a romantic partner in their country of origin, and 13 (54.2%) reported plans to return to their country of origin after completing their degree. For educational level, participants identified as 19 (5.8%) first year undergraduates, 73 (22.4%) sophomores, 73 (22.4%) juniors, 74 (22.7%) senior, and 87 (26.7%) graduate students, which means 239 (73.3%) were UGs and 87 (26.7%) were graduate students. Regarding relational/affectational orientation, participants reported as 299 (91.7%) heterosexual/straight, 4 (1.2%) gay man, 4 (1.2%) lesbian, 13 (4.0%) bisexual, 3 (0.9%) questioning, and 3 (0.9%) other. As for dating status, 27 (8.3%) were dating, casually; 84 (25.8%) were dating, seriously; 155 (47.5%) were partnered/in a relationship; 30 (9.2%) were engaged; 30 (9.2%) were married or married-like; and 0 (0%) reported polyamorous, separated, divorced, or widowed. The average relationship length was 27.85 months (SD = 30.54, M = 18.50, Range = 1 to 240). With regard to frequency of face-to-face contact, participants reported

seeing the partners as 1 (0.3%) never, 24 (7.3%) a few times a year, 25 (7.6%) once a month, 43 (13.1%) a few times a month, 18 (5.5%) once a week, 64 (20.1%) a few times a week, 37 (11.2%) for a short period of time each day, and 114 (35.0%) for several hours each day. Finally, participants average rating of the perceived importance of technology use in the romantic relationship was 5.12 (*SD* = 1.65, *Mdn* = 5.00, Range = 1 to 7) on a 7-point Likert-type scale.

Table 1

Demographic Characteristics of the Sample

Demographic Information	*n*	Frequency
Sex		
Female	217	66.6%
Male	108	33.1%
Not Reported	1	0.3%
Ethnicity		
African/Black, Non-Hispanic	8	2.5%
Asian	29	8.9%
Caucasian/White, Non-Hispanic	260	79.8%
Latino/a/Chicano(a)	8	2.5%
Native American/American Indian	1	0.3%
Pacific Islander	1	0.3%
Multiracial/Multiethnic	16	4.9%
Other	3	0.9%
International Student Status		
Yes	24	7.4%
No	300	92.0%
Not reported	2	0.6%
IS Family/Partner in Country of Origin		
Yes	14	58.3%
No	9	37.5%
Not Reported	1	4.2%
IS Plans to Return to Country of Origin		
Yes	13	54.2%
No	9	37.5%
Not Reported	2	8.3%

Demographic Information	*n*	Frequency
Education Level		
First year undergraduate	19	5.8%
Sophomore	73	22.4%
Junior	73	22.4%
Senior	74	22.7%
Graduate	87	26.7%
Relational/Affectational Orientation		
Heterosexual (straight)	299	91.7%
Gay Man	4	1.2%
Lesbian	4	1.2%
Bi-sexual	13	4.0%
Questioning	3	0.9%
Other	3	0.9%
Dating Status		
Dating, Casually	27	8.3%
Dating, Seriously	84	25.8%
Partnered/In a relationship	155	47.5%
Engaged	30	9.2%
Married or Married-like	30	9.2%
Polyamorous	0	0.0%
Separated	0	0.0%
Divorced	0	0.0%
Widowed	0	0.0%
Face-to-Face Contact		
Never	1	0.3%
Few times a year	24	7.3%
Once a month	25	7.6%
Few times a month	43	13.1%
Once a week	18	5.5%
Few times a week	64	20.1%
For a short period of time each day	37	11.2%
Face-to-Face Contact (continued)		
Several hours each day	114	35.0%
Relationship Type		
LDR	119	36.5%
GCR	207	63.5%
Reason for LDR		
Education	93	78.2%
Military	2	1.7%
Work	13	10.9%
Other	11	9.2%

Demographic Information	*n*	Frequency
LDR Face-to-Face Visits		
Less than once per month	31	26.1%
Once per month	28	23.5%
More than once per month	60	50.4%
Military Status		
Yes	2	0.6%
No	322	98.8%
Not reported	2	0.6%
Partner Military Status		
Yes	15	4.6%
No	308	94.5%
Not reported	3	0.9%
Military Deployment		
Yes	0	0.0%
No	316	96.9%
Not reported	10	3.1%

In additional demographic information, 119 (36.5%) participants identified as in a LDR, with 207 (63.5%) in a GCR. These percentages are similar to other LDR/GCR research. For example, Dellman-Jenkins et al. (1994) reported 43.2% of a college student sample identified as in a LDR, and Guldner (1996) found 29.0% of a college student sample to currently be in a LDR. The 119 LDR participants reported reasons for the LDR as 93 (78.2%) education, 2 (1.7%) military, 13 (10.9%) work, and 11 (9.2%) other. Their reported visitation with the partner was 31 (26.1%) less often than once per month, 28 (23.5%) once per month, and 60 (50.4%) more than once per month. A one-way MANOVA found no significant differences on the study's variables (i.e., attachment style, total technology use, sexual satisfaction, and relationship satisfaction) for physical visitation frequency. Further, 2 (0.6%) LDR participants reported currently being in the

military, with 15 (4.6%) reporting having a partner in the military, and 0 (0.0%) reporting the self, the partner, or both being currently deployed.

Because several of my analyses involved comparing the LDR and GCR groups, I also compared the demographic make-up of the groups. A t-test revealed no significant LDR/GCR difference on age, t (320) = -.61, p = .54, two-tailed, with LDR age being 22.12 years (M = 21.00, SD = 2.95) and GCR age being 22.40 years (M = 21.00, SD = 4.34). Chi Square tests revealed no significant differences between LDR and GCR groups for sex, χ^2 (1, n = 325) = .13, p = .72, *phi* = -.02; race/ethnicity, χ^2 (7, n = 326) = 4.01, p = .78, *phi* = .91; international student status, χ^2 (1, n = 324) = 1.97, p = .16, *phi* = .08; educational status, χ^2 (4, n = 326) = 2.07, p = .72, *phi* = .08; relational/affectational orientation, χ^2 (5, n = 326) = 9.53, p = .09, *phi* = .17; and dating status, χ^2 (4, n = 326) = 8.45, p = .08, *phi* = .16. Therefore, the LDR and GCR groups seem to be substantially equivalent, and demographic differences would not account for any LDR/GCR differences in data analysis.

Finally, to better describe the sample, I performed analyses on several relationship characteristics that could easily be different in LDRs and GCRs, because of LDR partners having limited physical accessibility to the partner. First, a t-test revealed no significant LDR/GCR difference on relationship length, t (270) = .18, p = .85, two-tailed, with LDR length being 28.31 months (M = 28.31, SD = 23.40) and GCR length being 27.60 months (M = 27.60, SD = 33.87). Second, a Chi Square test indicated significant LDR/GCR differences on frequency of face-to-face contact, χ^2 (7, n = 326) = 271.31, p = .00, *phi* = .91. More specifically, LDR participants were more likely to the see the partner a few times a year, once a month, a few times a month, or once a week, whereas GCR

participants were more likely to see the partner a few times a week or for a short period of time each day. Third, a t-test revealed significant LDR/GCR differences on the importance of technology use in romantic relationships, t (308.87) = 12.39, p = .00, two-tailed, η_p^2 = .28, with LDR participants (M = 6.28, SD = 1.10) rating the importance of technology use in their relationships as significantly higher than GCR participants (M = 4.45, SD = 1.54).

In comparing my sample with the university where I collected data, it seems that my sample was similar to the university population for with regard to average age and ethnicity demographics and different with regard to gender and international student status. For age, my sample had an average age of 22.3 years, which matched the average age of the university population (Purdue, 2014). For ethnicity, 20.3% of my sample identified as an ethnic minority, and, similarly, 15.7% of university students identified as racial/ethnic minorities (Purdue, 2014). For gender, female participants comprised 67% of my sample, whereas female students comprised only 42.2% of the university population (Purdue, 2014). For international student status, 7.4% of my sample identified as an international student, whereas 22.4% of the university population identified as an international student (Purdue, 2014).

Procedure

Following approval from the Purdue University Institutional Review Board (IRB; Appendix A), participants were recruited via a recruitment e-mail (Appendix B) sent by the University Registrar's Office to a random sample of 4,000 UG and graduate students. The e-mail invited students to participate in the study, explained the inclusionary criteria (i.e., must be 18 years of age or older and must be currently in a romantic relationship),

and contained a link to the survey's URL. A reminder e-mail (Appendix C) was sent to the same students two weeks after the initial recruitment message. After completing the survey, participants were directed to a new web page and invited to submit their e-mail addresses to enter a drawing for a $25 Amazon.com gift card, with 1:200 odds of winning. These e-mail addresses were stored in a separate file to ensure participant responses remain anonymous. I sent two gift cards and erased the emails after distributing the gift cards.

Instruments

After accessing the survey's Information Letter (Appendix D), participants complete a demographics questionnaire (Appendix E). Then, after instructions (Appendix F) to consider their most important current romantic relationship, including reflecting on feelings, moods, and other evaluations of the relationship, participants complete four measures: the categorical Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991; Appendix G), the multi-item RQ (Appendix H), the Technology Use Questionnaire (TUQ; Morey, Gentzler, Creasy, Oberhauser, and Westerman, 2013; Appendix I), the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998; Appendix J), and the Couples Satisfaction Index-16 (CSI; Funk & Rogge, 2007; Appendix K).

Demographic Questionnaire

The demographic questionnaire was created for this study. Participants provide age, sex, ethnic background, education level, international student status, sexual orientation, current romantic relationship status, the relationship length, frequency of face-to-face contact, and LDR/GCR status. They also respond to questions about the characteristics of their romantic relationship, such as the reason for LDR and the

importance of technology in their relationship. Following previous research methodology (Dellmann-Jenkins et al., 1993; Stafford, 2005), a LDR is described as one in which "your partner live[s] far enough away from you that it would be very difficult or impossible for you to see him or her every day" (Guldner & Swensen, 1995, p. 316). Stafford (2005) argues that participants should self-define as being in a long distance relationship, rather than a researcher defining a LDR by imposing specific physical markers such as miles or time apart. Additionally, LDR participants report frequency of physical face-to-face visits with their partners.

Attachment Style

To assess attachment, I use the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) in two forms to allow me to conduct analyses using both categorical (Appendix G) and continuous (Appendix H) measurement. The RQ was developed based on Bowlby's (1969/1982) description of individual differences in attachment (i.e., attachment style prototypes) as reflecting differing models of the self and the attachment figure. The two dimensions, model of self and model of other, are crossed to create four categories or prototypical styles: (a) secure, reflecting a positive model of the self and partner; (b) dismissing, reflecting a positive model of the self and a negative model of the partner; (c) preoccupied, reflecting a negative model of self and a positive model of the partner; and (d) fearful, reflecting a negative model of self and the partner. In its categorical form, the RQ is a single-item measure consisting of four brief paragraphs that each describe an attachment style prototype. Sample statements for each attachment style, include (a) secure, "It is easy for me to become emotionally close to others;" (b) dismissing, "It is very important to me to be independent and self-sufficient, and I prefer

not to depend on others or have others depend on me;" (c) preoccupied, "I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like;" and (d) fearful, "I worry that I will be hurt if I allow myself to become too close to others." Participants select the one prototype that best describes the self in the current romantic relationship. The selection classifies participants into one of the secure, fearful, preoccupied, or dismissing prototypes.

In order to use the RQ as a continuous measure, following previous methodology (Simpson, 1990; Williamson, Walters, & Shaffer, 2002), I deconstructed the four RQ prototype paragraphs into 18 sentences (Appendix H), with each sentence representing one thought. For example, "I don't worry about being alone or having others not accept me" was separated into two items, "I don't worry about being alone," and "I don't worry about others not accepting me." In this version of the RQ, participants rate each item on a 7-point Likert-type scale, ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Paragraph items are summed to form a score for the secure (5 items), dismissing (4 items), preoccupied (4 items), and fearful (5 items) prototypes. High scores on each prototype subscale indicate higher endorsement of that attachment style.

Regarding the psychometric properties of the scores, construct validity was demonstrated through a principal components factor analysis with a varimax rotation of the intercorrelations of three attachment measures, including the RQ, that revealed two factors (i.e., model of self and others), accounting for 48% and 41% of variance in two college student samples (Bartholomew & Horowitz, 1991). Additional RQ construct validity was demonstrated by each attachment style rating being associated with expected and distinct patterns of sociability, interpersonal problems, and self-concept

(Bartholomew & Horowitz, 1991). For convergent validity, RQ self-report responses appropriately converged with attachment interview ratings (Bartholomew & Horowitz, 1991). In terms of reliability of the scores, the prototypes were found to remain moderately stable across an 8-month period (r = .39 to .58; Schrafe & Bartholomew, 1994), with RQ test-retest reliability being r = .76 (p < .05) and rs = .70 to .75 (p < .05) across one-to two-month and four-year time periods, respectively (Levy, Blatt, & Shaver, 1998). In the present study, reliability ratings for the scores were α = .58 for secure, α = .61 for dismissing, α = .60 for preoccupied, and α = .68 for fearful. Using similar methodology of deconstructing the attachment style sentences for the 3-category attachment measure (Hazan & Shaver, 1987), Simpson (1990) found score reliabilities of secure = .51, avoidant = .79, and anxious = .59, though the anxious was called anxious/ambivalent. The reliabilities on my measure are adequate for research (Cortina, 1993).

Technology Use

To measure technology use in communication with a romantic partner, I followed previous methodology by Morey et al. (2013) and developed what I call the Technology Use Questionnaire (TUQ). I use six items to examine six channels of technology-based communication. I started with Morey et al.'s (2013) telephone, electronic mail (e-mail), SNS, and text messaging technology items; and, based on previous LDR research methodology (Greenberg & Neustaedter, 2013), I also included instant messaging and video chat (e.g., Skype, FaceTime) items. Participants rate items using an 8-point scale, with 0 = *never*, 1 = *few times a year*, 2 = *once a month*, 3 = *few times a month*, 4 = *once a week*, 5 = *a few times a week*, 6 = *for a short period of time each day*, 7 = *several hours*

each day (Morey et al., 2013). I chose this methodology because the rating scale incorporates both frequency (e.g., few times a year; once a month) and duration (e.g., short time period; several hours each day) of technology use. The TUQ technology items are summed to create a total technology use score, with higher scores indicating more frequent use of technological communication. Additionally, each channel of communication (e.g., e-mail, texting) can be examined based on the single score for that particular communication type.

Rather than a scale, the TUQ is essentially a set of demographic items specific to the type of channel used in communicating with the romantic partner. Therefore, no psychometric information is reported. Nonetheless, in a 2009 (N = 135) and 2011 (N = 145) study of college student use of technological communication (Morey et al., 2013), respectively, means were 5.99 and 5.80 (SDs = 1.10 and 1.25) for phone, 1.02 and 0.74 (SD = 1.67 and 1.54) for e-mail, 2.80 and 3.37 (SD = 2.08 and 1.95) for SNSs, and 5.83 and 6.39 (SD = 1.92 and 0.98) for texting.

Sexual Satisfaction

The 5-item Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998) assesses a general satisfaction in sexual relationships with romantic partners. The GMSEX is one of three scales included in the Interpersonal Exchange Model of Sexual Satisfaction questionnaire (IEMSS; Lawrance & Byers, 1995), which is designed for both dating and married partners. The broader IEMSS consists of the GMSEX, the Global Measure of Relationship Satisfaction (GMREL), and the Exchanges Questionnaire, a background questionnaire (e.g., frequency of sexual activities), and a checklist of sexual costs and rewards (e.g., amount of spontaneity in your sex life). The authors designed the

IEMSS so that researchers could use the total score or use the subscales (e.g., the GMSEX) separately. The GMSEX items are bipolar: good-bad, pleasant-unpleasant, positive-negative, satisfying-unsatisfying, and valuable-worthless. Participants rate the current perception of the sexual relationship with the partner using a 7-point Likert-type scale anchored on the positive end by 7 and on the negative end by 1. The five items are totaled. Higher scores on the GMSEX indicate greater sexual satisfaction.

Although originally conceptualized to apply to long-term romantic relationships (Lawrance & Byers, 1998), the IEMSS and the GMSEX (Lawrance & Byers, 1998) can be used with short-term dating relationships (Byers, Demmons, & Lawrance, 1998). Regarding the GMSEX and the psychometric properties of its scores, Lawrance and Byers (1998) demonstrated convergent validity for the GMSEX scores via correlations (r = .65, p < .001) with the Index of Sexual Satisfaction (ISS; Hudson, Harrison, & Crosscup, 1981) and (r = .70, p < .001) with a single-item sexual satisfaction measure (Lawrance & Byers, 1992 as cited in Lawrance and Byers, 1998). The GMSEX test-retest reliability was r = .84 (p < .001) across two-weeks (Lawrance & Byers, 1992 as cited in Lawrance and Byers, 1998) and r = .78 (p < .001) across three-months (Lawrance & Byers, 1995). Finally, internal consistency for the scores was (a) α = .90 in a college sample (n = 90) for participants who had dated over one year (Lawrance & Byers, 1992 as cited in Lawrance and Byers, 1998) and (b) α = .96 in a community sample (N = 244) of long-term daters (Lawrance & Byers, 1995). My internal consistency for scores was α = .93.

Relationship Satisfaction

The Couples Satisfaction Index-16 (CSI-16; Funk & Rogge, 2007) measures romantic relationship satisfaction. The CSI-16 consists of (a) 10 global items (e.g., "In general, how often do you think that things between you and your partner are going well?" and "How well does your partner meet your needs?"), and (b) 6 bipolar adjective items (e.g., "interesting-boring" and "discouraging-hopeful"). Participants rate the global items using 6- or 7-point Likert-type scales with varying anchors, for example, 0 = *Not at all true* and 5 = *Completely true*, and 0 = *Extremely unhappy* and 6 = *Perfect*. The 16 items are summed, with some items reverse scored. Higher scores indicate higher relationship satisfaction.

The CSI-16 (Funk & Rogge, 2007) is a short version of the 32-item CSI, which was developed to improve relationship satisfaction measurement (Funk & Rogge, 2007). In developing the CSI, the authors began with 176 items from three sources: (a) 75 items from eight widely cited relationship satisfaction measures, including the Dyadic Adjustment Scale (DAS; Spanier, 1976), the Marital Adjustment Test (MAT; Locke & Wallace, 1959), and the Quality of Marriage Index (QMI; Norton, 1983); (b) another 71 satisfaction-related items, including 25 items from less widely used measures (e.g., "I have a warm and comfortable relationship with my partner" from the Triangular Love Scale [Sternberg, 1997]) and 46 newly created items; and (c) 30 items from three related but distinct communication scales, including the Communication Patterns Questionnaire (CPQ-CC; Heavey, Larson, Zumtobel, & Christensen, 1996), the Ineffective Arguing Inventory (IAI; Kurdek, 1994), and the conflict subscale of the Marital Coping Inventory (MCI-C; Bowman, 1990). An initial principal-components analysis (PCA) with an

oblique rotation revealed two components, relationship satisfaction and hostile communication. Funk and Rogge (2007) used the PCA correlation patterns to narrow the item pool to 103 satisfaction items. Items were selected if they had at least a correlation of $r = .40$ with the satisfaction component and were more strongly correlated with the satisfaction component than the hostile communication component. Then an inter-item partial correlation matrix was used to identify redundant items. In this step, item pairs with a correlation of at least $r = .40$ were identified; and within those pairs, the item with a lower correlation to relationship satisfaction was deleted. This step resulted in a pool of 63 items. Finally, using item response theory (IRT), the authors completed the CSI by identifying 32 items that provided the most information related to relationship satisfaction. They used the same IRT method to create the CSI 16-item short form and a CSI 4-item short form. I chose to use the 16-item measure, because it is shorter than the 32-item measure and maintains high internal consistency of scores.

Regarding psychometric properties of the scores, the CSI-16 (Funk & Rogge, 2007) convergent validity was demonstrated by positive correlations (rs = .89, $p < .001$; .90, $p < .001$; and .96, $p < .001$, respectively) with the DAS (Spanier, 1976), MAT (Locke & Wallace, 1959), and QMI (Norton, 1983). Construct validity was evidenced by the correlation patterns between the CSI-16 and communication related measures (e.g., CPQ-CC, IAI, MCI-C) being similar to the correlation patterns found between other established relationship satisfaction measures (e.g., DAS, MAT, QMI) and the same communication related measures (Funk & Rogge, 2007). In addition, Funk and Rogge (2007) reported CSI-16 scores' internal consistency of $\alpha = .98$. In a meta-analysis of relationship satisfaction measures, the average internal consistency of the original CSI

was α = .94 (Graham, Diebels, & Barnow, 2011). In my study, the internal consistency of CSI-16 scores was α = .96.

CHAPTER IV

RESULTS

In this chapter, I present the data analyses and results of the study. I begin with preliminary analyses and then provide the results for the analysis of my three hypotheses. For this correlational design, I used SPSS 22 for analyses.

Preliminary Data Analysis

First, I computed means, standard deviations, ranges, and reliability statistics for each variable (Table 2). The deconstructed version of the RQ and the TUQ were designed for this study and have not been used in previous publications so far as I could determine. However, means for the GMSEX and CSI-16 are consistent with means in previous studies (See Table 3). For example, my GMSEX mean (M = 31.70, SD = 4.29) was similar to a college student sample (M = 30.7, SD = 4.5; Byers et al., 1998) and a community sample (M = 28.60, SD = 6.6; Lawrance & Byers, 1995). My CSI-16 mean (M = 66.72, SD = 12.61) was also similar to a college student sample of men (M = 67.07, SD = 12.57) and women (M = 65.62, SD = 12.87; Whitton & Kuryluk, 2012). Internal consistencies ranged from α = .58 to α = .96. My reliabilities were similar with internal consistencies in previous studies. Although the exact deconstructed version of the RQ used in this study has not been used elsewhere, the deconstruction of an earlier version of the RQ yielded internal consistencies similar to those in my study. More specifically, the

internal consistencies of my attachment scores ranged from α = .58 to .68, and internal consistencies of scores in a college student sample with a similar deconstructed version of the RQ ranged from α = .51 to .79 (Simpson, 1990). The internal consistency of my GMSEX scores (α = .93) was similar to a college student sample (α = .90; Byers et al., 1998) and a community sample (α = .96; Lawrance & Byers, 1995). For the CSI-16, my internal consistency of scores (α = .96) was also similar to other college student samples (α = .95; Bruner, Kuryluk, & Whitton, 2015; Whitton & Kuryluk, 2012).

Table 2

Descriptive Statistics and Reliability Coefficients of Scale Scores

Measure	*N*	Range	*M*	*SD*	α
RQ					
Secure	323	9-35	22.85	4.80	.58
Dismissing	320	4-27	16.64	3.88	.61
Preoccupied	322	4-28	16.25	4.23	.60
Fearful	321	8-34	21.40	5.15	.68
TUQ					
Phone	326	0-7	4.74	1.58	
Email	324	0-7	2.05	1.89	
SNS	325	0-7	2.99	2.01	
Text	326	3-7	6.27	0.84	
IM	326	0-7	2.75	2.42	
Video	326	0-7	1.93	1.98	
Total	323	5-37	20.60	6.29	
GMSEX	326	11-35	31.70	4.29	.93
CSI-16	321	25-81	66.72	12.61	.96

Note. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16.

Table 3

Comparison of My and Other Studies Means and SDs

	Sample		Other Studies		
Variable	*M*	*SD*	Comparison Sample	*M*	*SD*
GMSEX	31.70	4.29	College students[a]	30.70	4.50
			Community[b]	28.60	6.60
CSI-16	66.72	12.61	Men, college student[c]	67.07	12.57
			Women, college student[c]	65.62	12.87

Note. N = 326. GMSEX = General Measure of Sexual Satisfaction and CSI-16 = Couples' Satisfaction Index-16. Comparison data from: [a]Byers et al. (1998), [b]Lawrance & Byers (1995), [c]Whitton & Kuryluk (2012).

Second, I used Pearson correlations to calculate the relatedness of the scale scores and determine if the data was appropriate for the planned analyses. For the LDR group, significant positive and negative correlations ranged from .20 to .66, $p < .05$ to $p < .01$ (Table 4, top). For the GCR group, significant positive and negative correlations ranged from .14 to .69, $p < .05$ to $p < .01$ (Table 4, bottom). Although several variables were significantly related to one another in both groups, correlations were not above .80, which indicates there is likely not a multicollinearity problem (Tabachnick & Fidell, 2007). For further discussion of the significant correlations, see Appendix L.

Table 4

Correlations among Variables for LDRs and GCRs

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. RQ Secure	--	-.20*	-.11	-.62**	.14	.27**	.08	.14	.09	-.05	.18	.22*
2. RQ Dismissing	-.06	--	-.28**	.26**	.02	-.10	.02	.02	.15	.00	-.12	-.05
3. RQ Preoccupied	-.14*	-.46**	--	.12	-.12	.01	.11	.08	.07	.11	-.02	.11
4. RQ Fearful	-.55**	.19**	.21**	--	-.08	-.23*	-.03	-.06	-.09	-.01	-.20*	-.25**
5. TUQ Phone	.10	-.02	.05	-.07	--	.27**	-.05	.14	.00	.18	.06	.18
6. TUQ Email	-.06	-.03	.00	.01	.17*	--	.09	.07	.13	.07	.31**	.32**
7. TUQ SNS	-.20**	.01	.13	.12	.09	.11	--	.16	.66**	.17	.05	.08
8. TUQ Text	.17*	-.05	.04	-.03	.20**	-.25**	.13	--	-.09	.05	.20*	.10
9. TUQ IM	-.19**	-.08	.16*	.05	-.05	.29**	.51**	-.11	--	.24**	-.07	.11
10. TUQ Video	-.06	.02	.08	.08	.24**	.32**	.26**	.11	.39**	--	-.02	.27**
11. GMSEX	.23**	-.15*	-.09	-.24**	.11	.03	.04	.17*	.07	.13	--	.41**
12. CSI-16	.29**	-.12	-.13	-.32**	.24**	.14	.07	.21**	.03	.10	.69**	--

Note. LDR *(n = 119)* correlations are above the diagonal and GCR *(n = 207)* correlations are below the diagonal. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16.
*$p < .05$. **$p < .0$

Third, for both LDRs and GCRs, I conducted one-way multivariate analyses of variance (MANOVAs) to determine whether I needed to control for any demographic variables in analyzing my hypotheses. I used the demographic categories (e.g., sex, ethnicity, international student status, education level, relational/affectational orientation, dating status) as the independent variables, and RQ-continuous ratings, TUQ face-to-face item and technology communication total score, GMSEX total score, and CSI-16 total score served as the dependent variables. I planned to control for demographic variables with significant MANOVA differences, where the effect size was above .10 (Cohen, 1992). For the LDR group, MANOVA *F*s (See Table L1 in Appendix L) revealed no significant differences for demographic variables. For the GCR group, MANOVA *F*s revealed significant differences (Appendix L) for three demographic variables (i.e., sex, relational/affectational orientation, and relationship status; see Appendix L). For sex, Wilks' Lambda = .82, F (8,106) = 2.90, p = .01, η_p^2 = .18, univariate follow-up analyses revealed that (a) men (M = 17.54, SD = 3.28) scored significantly higher than women (M = 16.16, SD = 4.17) on dismissing attachment, and (b) women (M = 68.31, SD = 12.37) scored significantly higher than men (M = 63.99, SD = 12.67) on CSI-16 relationship satisfaction. For relational orientation, Wilks' Lambda = .55, F (32,393) = 2.15, p = .00, η_p^2 = .14, univariate follow-up analyses revealed significant differences for TUQ face-to-face contact, TUQ total technology use, and CSI-16; but post-hoc analyses could not be completed due to the small cells in multiple groups. Therefore, I re-ran the MANOVA using groups of heterosexual (n = 166) and non-heterosexual (n = 21) participants, though this analysis loses some of the richness of the data. This MANOVA F was significant, Wilks' Lambda = .91, F (8,181) = 2.12, p = .04, η_p^2 = .09, univariate follow-

up analyses revealed that (a) heterosexual participants (M = 23.06, SD = 4.62) scored significantly higher than non-heterosexual participants (M = 20.38, SD = 4.17) on secure attachment, (b) non-heterosexual participants (M = 25.05, SD = 4.11) scored significantly higher than heterosexual participants (M = 21.20, SD = 5.27) on fearful attachment, and (c) heterosexual participants (M = 67.67, SD = 12.38) scored significantly higher than non-heterosexual participants (M = 60.14, SD = 15.87) on CSI-16 relationship satisfaction. (See Appendix L). For relationship status, Wilks' Lambda = .54, F (32,393) = 2.22, p = .00, η_p^2 = .14, univariate follow-up analyses revealed significant differences for dismissing attachment, fearful attachment, TUQ face-to-face contact, (see Appendix L for results that include the Bonferroni post-hoc analyses). Nonetheless, because Hypothesis 1 and the related analyses focus on the LDR model and because the LDR and GCR models would not be comparable if these variables were to be controlled in only the GCR model, I chose not to control for sex, relational orientation, and relationship status in the subsequent analyses.

Analysis of the Hypotheses

I have three hypotheses that correspond to my three RQs. For each hypothesis, I have at least two elements (e.g., H1a and H1b). First, for H1a about the unique contributions of attachment style, technology channel use, and sexual satisfaction to LDR relationship satisfaction, I conducted a hierarchical multiple regression (HMR) for LDRs. Then, to test H1b about the differences between contributions of attachment style, technology channel use, and sexual satisfaction to relationship satisfaction in LDRs and GCRs, I compared HMRs for LDRs and GCRs. Second, I examined H2 about LDR/GCR frequency of technology use and H3 about LDR/GCR technology channels together. I

conducted a two-way ANOVA to test H2a and H3a, conducted a two-way MANOVA to test H2b and H3b. Finally, I used descriptive statistics to test H2c about technology channel preferences within each attachment style.

H1 – Contributions to Relationship Satisfaction

To examine H1, I conducted two HMRs, one for LDRs (H1a) and one for GCRs (H1b). I used a HMR, because the variables (i.e., RQ secure, dismissing, preoccupied, and fearful; TUQ phone, e-mail, SNS, text messaging, IM, and video chat; GMSEX sexual satisfaction; and CSI-16 relational satisfaction) have not been examined together in previous research; and I was interested in seeing the contribution of the various variables in particular steps. For example, I was interested in whether the contribution of attachment style would change when other variables were added to the equation. For both the LDR and the GCR HMR models, the CSI-16 total relationship satisfaction score was the criterion variable, and I entered all variables in the same order in both the LDR and GCR equations. In step 1, I entered attachment style scores (i.e., secure, dismissing, preoccupied, and fearful). Theoretically, attachment is the foundation of the romantic relationship, with the style developing at a young age and likely influencing later romantic relationship behaviors (e.g., communication and sex). In step 2, I entered the six TUQ specific channel use scores (i.e., telephone, email, SNS, texting, IM, video chat), because communication is used to maintain attachment proximity, safe haven, and secure base functions. Finally, in step 3, I entered the GMSEX sexual satisfaction total score, because sex, as a part of romantic relationships, is the developmentally most recent relational behavior. To determine each variable's unique contribution, I examined the semipartial correlations and squared semipartial correlations, which provide the amount

of unique relationship satisfaction variance explained by the specific variable. For H1a, I examined the semipartial correlations and squared semipartial correlations for the LDR regression. To test H1b, I descriptively compared the semipartial correlations and squared semipartial correlations for the LDR and GCR regressions.

For H1a, the step 1 equation was significant, explaining 9.9% (adjusted = 6.6%) of the variance, $R = .31$, $R^2 = .10$, $F(4, 110) = 3.01$, $p = .02$ (Table 5). However, examination of the Beta weights revealed no significant unique contributions for RQ secure, dismissing, preoccupied, or fearful attachment. In step 2, the equation was significant, explaining 22.0% (adjusted = 14.6%) of the variance, $R = .47$, $R^2 = .22$, F (10, 104) = 2.96, $p = .00$, $\Delta R^2 = .12$, ΔF (6, 104) = 2.73, $p = .02$. Significant Beta weights and semipartial correlations indicated that TUQ email ($\beta = .22$, $r_{a(b.c)} = .21$) and TUQ video ($\beta = .23$, $r_{a(b.c)} = .22$) channel use contributed significant, unique, positive variance to relationship satisfaction. In step 3, the equation was significant 32.7% (adjusted = 25.5%) of the variance, $R = .57$, $R^2 = .33$, F (11, 103) = 4.55, p = .00, $\Delta R^2 = .11$, ΔF (1, 103) = 16.14, $p = .00$. For this final equation, the observed statistical power, based on $N = 119$, $R^2 = .33$, and $p = .05$, was 1.00 (Soper, 2015). Significant Beta weights and semipartial correlations indicated that only TUQ video channel use ($\beta = .23$, $r_{a(b.c)} = .22$) and GMSEX sexual satisfaction ($\beta = .29$, $r_{a(b.c)} = .33$) contributed significant, unique, positive variance to relationship satisfaction. Recall H1a was that secure attachment, preoccupied attachment, and use of all technology channels would contribute positively to LDR relationship satisfaction, while dismissing and fearful attachment will contribute negatively LDR relationship satisfaction. Because only video channel use contributed positively to relational satisfaction, H1a was only partially supported. Notably, GMSEX

sexual satisfaction, which was not hypothesized to contribute to LDR CSI-16 relationship satisfaction, demonstrated the highest significant, positive contribution ($r_{a(b.c)}$ = .33) to relationship satisfaction accounting for 11% of the unique variance in the LDR relational satisfaction.

Table 5

Regression Explaining CSI-16 Relationship Satisfaction for LDRs (H1a)

Variable	*B*	*SE B*	*β*	*t*	$r_{a(b.c)}$	$r_{a(b.c)}^2$
Step 1						
RQ – Secure	0.30	0.29	.12	1.04	.09	.01
RQ – Dismissing	0.27	0.33	.08	0.81	.07	.00
RQ – Preoccupied	0.53	0.29	.18	1.82	.17	.03
RQ – Fearful	-0.57	0.30	-.22	-1.88	-.18	.03
Step 2						
RQ – Secure	0.19	0.29	.08	0.66	.06	.00
RQ – Dismissing	0.27	0.33	.08	0.81	.07	.00
RQ – Preoccupied	0.45	0.29	.15	1.55	.13	.02
RQ – Fearful	-0.48	0.29	-.19	-1.64	-.14	.02
TUQ – Phone	0.61	0.86	.07	0.71	.06	.00
TUQ – Email	1.35	0.57	.22	2.39*	.21	.04
TUQ – SNS	0.07	0.74	.01	0.10	.01	.00
TUQ – Text	0.52	1.67	.03	0.31	.03	.00
TUQ – IM	-0.14	0.61	-.03	-0.23	-.02	.00
TUQ – Video	1.29	0.52	.23	2.49*	.22	.05
Step 3						
RQ – Secure	0.20	0.27	.08	0.72	.06	.00
RQ – Dismissing	0.32	0.31	.10	1.03	.08	.01
RQ – Preoccupied	0.48	0.27	.16	1.79	.14	.02
RQ – Fearful	-0.36	0.28	-.14	-1.32	-.11	.01
TUQ – Phone	0.77	0.81	.08	0.96	.08	.01
TUQ – Email	0.70	0.55	.12	1.28	.10	.01
TUQ – SNS	-0.23	0.70	-.04	-0.33	-.03	.00
TUQ – Text	-0.66	1.59	-.04	-0.42	-.03	.00
TUQ – IM	0.24	0.57	.05	0.42	.03	.00
TUQ – Video	1.32	0.48	.23	2.72**	.22	.05
GMSEX	1.16	0.29	.36	4.02***	.33	.11

Note. $N = 119$. Criterion variable is CSI-16 relationship satisfaction. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16. $r_{a(b.c)}$ = semipartial correlation; $r_{a(b.c)}^2$ = squared semipartial correlation.
*$p < .05$. **$p < .01$. ***$p < .001$.

In order to test H1b (i.e., that the contributions of attachment style, technology use, and sexual satisfaction will differ in LDRs and GCRs), I conducted a HMR for GCR

CSI-16 relationship satisfaction using the same method described above for LDRs. The step 1 equation was significant, explaining 13.6% (adjusted = 11.9%) of the variance, R = .37, R^2 = .14, F (4, 195) = 7.69, p = .00 (Table 6). Significant Beta weights and semipartial correlations indicated that RQ secure attachment (β = .17, $r_{a(b.c)}$ = .14) contributed significant, unique, positive variance to relationship satisfaction, whereas RQ fearful attachment (β = -.18, $r_{a(b.c)}$ = -.14) contributed significant, unique, negative variance to relationship satisfaction. In step 2, the equation was significant, explaining 23.3% (adjusted = 19.3%) of the variance, R = .48, R^2 = .23, F (10, 189) = 5.75, p = .00, ΔR^2 = .10, ΔF (6, 189) = 3.99, p = .00. Significant Beta weights and semipartial correlations indicated TUQ phone (β = .15, $r_{a(b.c)}$ = .14), TUQ email (β = .15, $r_{a(b.c)}$ = .13), and TUQ text (β = .18, $r_{a(b.c)}$ = .16) channel usage contributed significant, unique, positive variance to relationship satisfaction, whereas RQ preoccupied (β = -.16, $r_{a(b.c)}$ = -.13) and RQ fearful (β = -.18, $r_{a(b.c)}$ = -.14) attachment contributed significant, unique, negative variance to relationship satisfaction. In step 3, the equation was significant, explaining 55.7% (adjusted = 53.1%) of the variance, R = .75, R^2 = .56, F (11, 188) = 21.46, p = .00, ΔR^2 = .32, ΔF (1, 188) = 137.09, p = .00. For this final equation, the observed statistical power, based on N = 207, R^2 = .56, and p = .05, was 1.00 (Soper, 2015). Significant Beta weights and semipartial correlations indicated that TUQ phone (β = .12, $r_{a(b.c)}$ = .11) and TUQ email (β = .15, $r_{a(b.c)}$ = .13) channel use, and GMSEX sexual satisfaction (β = .62, $r_{a(b.c)}$ = .57) contributed significant, unique, positive variance to relationship satisfaction.

Table 6

Regression Explaining CSI-16 Relationship Satisfaction for GCRs (H1b)

Variable	*B*	SE B	β	*t*	$r_{a(b.c)}$	$r_{a(b.c)}^2$
Step 1						
RQ – Secure	0.45	0.21	.17	2.08*	.14	.02
RQ – Dismissing	-0.42	0.25	-.13	-1.65	-.11	.01
RQ – Preoccupied	-0.38	0.24	-.13	-1.62	-.11	.01
RQ – Fearful	-0.42	0.20	-.18	-2.11*	-.14	.02
Step 2						
RQ – Secure	0.39	0.21	.14	1.82	.12	.01
RQ – Dismissing	-0.41	0.25	-.13	-1.67	-.11	.01
RQ – Preoccupied	-0.47	0.23	-.16	-2.06*	-.13	.02
RQ – Fearful	-0.43	0.20	-.18	-2.20*	-.14	.02
TUQ – Phone	1.16	0.54	.15	2.15*	.14	.02
TUQ – Email	1.05	0.53	.15	1.99*	.13	.02
TUQ – SNS	0.48	0.49	.08	0.98	.06	.00
TUQ – Text	2.56	1.02	.18	2.52*	.16	.03
TUQ – IM	0.13	0.46	.02	0.29	.02	.00
TUQ – Video	0.03	0.72	.00	0.04	.00	.00
Step 3						
RQ – Secure	0.16	0.16	.06	0.97	.05	.00
RQ – Dismissing	-0.03	0.19	-.01	-0.17	-.01	.00
RQ – Preoccupied	-0.16	0.18	-.06	-0.93	-.05	.00
RQ – Fearful	-0.29	0.15	-.12	-1.93	-.09	.01
TUQ – Phone	0.94	0.41	.12	2.92*	.11	.01
TUQ – Email	1.06	0.40	.15	2.65**	.13	.02
TUQ – SNS	0.45	0.37	.07	1.21	.06	.00
TUQ – Text	1.40	0.78	.10	1.80	.09	.01
TUQ – IM	-0.17	0.35	-.03	-0.48	-.02	.00
TUQ – Video	-0.55	0.55	-.06	-1.00	-.05	.00
GMSEX	1.73	0.15	.62	11.71***	.57	.32

Note. $N = 207$. Criterion variable is CSI-16 relationship satisfaction. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16. $r_{a(b.c)}$ = semipartial correlation; $r_{a(b.c)}^2$ = squared semipartial correlation.
*$p < .05$. **$p < .01$. ***$p < .001$.

For H1b, I hypothesized that the RQ attachment style, TUQ technology channel use, and GMSEX sexual satisfaction variables would explain CSI-16 relationship

satisfaction differently in LDRs and GCRs. Although the LDR and GCR final equations do differ (i.e., TUQ video and GMSEX contributed significant, unique, positive variance to LDR CSI-16 relationship satisfaction, whereas TUQ phone, TUQ email, and GMSEX sexual satisfaction contributed significant, unique, positive variance to GCR CSI-16 relationship satisfaction), the LDR/GCR regression results do not match my specific expectations. More specifically, for LDRs, I expected that RQ preoccupied attachment and TUQ technology use across all channels would contribute positively CSI-16 relationship satisfaction; for GCRs, I expected that TUQ technology channels high in synchronicity and sensory input (i.e., telephone, texting, IM, and video chat) and GMSEX sexual satisfaction would contribute positively to CSI-16 relationship satisfaction, with RQ preoccupied attachment contributing negatively to CSI-16 relationship satisfaction. My comparison of the LDR/GCR final equations indicates that TUQ video channel use and GMSEX sexual satisfaction contributed unique positive variance to LDR relationship satisfaction, whereas TUQ phone and TUQ email channel use as well as GMSEX sexual satisfaction contributed unique positive variance to GCR relationship satisfaction. Thus, H1b could be viewed as partially supported, because the LDR/GCR models are different; however, none of my specific expectations for the differences in the LDR/GCR models was supported. Notably, sexual satisfaction contributed the most significant, unique, positive variance, accounting for 11% of unique LDR ($r_{a(b.c)}^2$ = .11, Table 5) variance and 32% of unique GCR ($r_{a(b.c)}^2$ = .32, Table 6) variance.

H2 and H3 – Attachment style and LDR/GCR Differences in Technology Use

I examined H2 and H3 together because both hypotheses address expected mean differences among groups. More specifically, H2a and H2b concern attachment style differences on the TUQ frequency of technology use and the TUQ specific technology channels used, respectively. H3a and H3b address LDR/GCR differences on TUQ technology use and the TUQ specific technology channels used, respectively. H2c addresses TUQ technology channel preferences within each style and is examined with descriptive statistics.

For H2a (i.e., attachment style differences in overall technology use) and H3a (i.e., LDR/GCR differences in overall technology use), I conducted a two-way 4x2 ANOVA with the total TUQ score as the dependent variable and the RQ-categorical groupings (i.e., secure, dismissing, preoccupied, and fearful) and LDR/GCR relationship status as the independent variables (see Table 7). In the only significant finding, there was a statistically significant main effect for LDR/GCR relationship status (H3a), F (1, 315) = 26.51, p = .00, η_p^2= .08. Inspection of means indicated that LDR participants reported more technology use across channels (M = 23.14, SD = 6.40) than GCR participants (M = 19.12, SD = 5.74). However, the main effect for attachment style (H2a) was not statistically significant, F (3, 315) = .26, p = .86, and the interaction effect between attachment style and relationship distance was not statistically significant, F (3, 315) = .44, p = .72. Thus, H2a was not supported, but H3a was supported, because I had expected that persons in LDRs (vs. GCRs) would report higher total technology use differences.

Table 7

Attachment Style and LDR/GCR Means/Standard Deviations for TUQ Total Technology Use

	Secure	Dismissing	Preoccupied	Fearful	Total
LDR					
M	23.45	23.54	22.35	22.86	23.14
SD	5.42	7.16	7.00	6.92	6.40
n	44	26	20	29	119
GCR					
M	19.41	18.54	20.09	18.48	19.12
SD	5.36	6.24	6.65	5.82	5.74
n	99	26	23	56	204
Total					
M	20.66	21.04	21.14	19.98	
SD	5.68	7.11	6.83	6.52	
n	143	52	43	85	

For H2b (i.e., attachment style differences in specific technology channel use) and H3b (i.e., LDR/GCR relationship differences in specific technology channel use), I conducted a two-way MANOVA with the TUQ individual technology channel scores as the dependent variables and with the RQ-categories and LDR/GCR relationship status at the independent variables (see Tables 8 and 9). The MANOVA equation was statistically significant for RQ attachment style mean differences, F (18, 877) = 2.33, p = .00, Wilks' Lambda = .88, η_p^2 = .04. On follow-up univariate analyses (Table 8), RQ attachment style mean differences were significant for TUQ phone use, F (3, 315) = 4.05, p = .01, η_p^2 = .04, and TUQ email use, F (3, 315) = 4.01, p = .01, η_p^2 = .04. Bonferroni post-hoc tests for TUQ phone use and for TUQ email use indicated the securely attached (M = 5.03, SD = 1.31) reported higher phone use than the fearfully attached (M = 4.42, SD = 1.73), and the securely attached reported higher phone use and email use, respectively, (M = 5.03,

SD = 1.31; *M* = 2.27, *SD* = 1.85) than the preoccupiedly attached (*M* = 4.30, *SD* = 1.74; *M* = 1.30, *SD* = 1.58). In addition, the MANOVA equation was statistically significant for LDR/GCR mean differences, *F* (6, 310) = 18.01, *p* = .00, Wilks' Lambda = .74, η_p^2 = .26. Follow-up univariate analyses (Table 9) indicated statistically significant LDR/GCR differences for TUQ phone, *F* (1, 315) = 21.81, *p* = .00, η_p^2 = .07; TUQ texting, *F* (1, 315) = 14.25, *p* = .00, η_p^2 = .04; and TUQ video chat use, *F* (1, 315) = 91.97, *p* = .00, η_p^2 = .23. Examination of the mean scores indicated phone use was higher for LDRs (*M* = 5.24, *SD* = 1.37) than GCRs (*M* = 4.46, *SD* = 1.63), texting use was higher for LDRs (*M* = 6.50, *SD* = .68) than GCRs participants (*M* = 6.13, *SD* = .90), and video chat use was higher for LDRs (*M* = 3.28, *SD* = 2.22) than GCRs (*M* = 1.15, *SD* = 1.31). The MANOVA interaction effect between attachment style and relationship distance was not statistically significant, *F* (18, 877) = 1.29, *p* = .19, Wilks' Lambda = .93, η_p^2 = .02.

Table 8

MANOVA Results for TUQ Channel Use by Attachment Style

Variable	Secure (n = 143)	Dismissing (n = 26)	Preoccupied (n = 20)	Fearful (n = 85)	F (3, 315)	η^2
TUQ Phone					4.05**	.04
M	$5.03_{a,c}$	4.83	4.30_{b}	4.42_{d}		
SD	1.31	1.75	1.74	1.73		
TUQ Email					4.01**	.04
M	2.27_{a}	1.98	1.30_{b}	2.12		
SD	1.85	1.92	1.58	2.00		
TUQ SNS					0.90	.01
M	2.87	2.88	3.44	2.98		
SD	1.89	2.32	2.09	1.95		
TUQ Text					0.95	.01
M	6.35	6.29	6.21	6.15		
SD	0.78	0.87	0.74	0.96		
TUQ IM					1.81	.02
M	2.44	3.13	3.40	2.65		
SD	2.26	2.64	2.35	2.49		
TUQ Video					1.56	.02
M	1.81	2.12	2.65	1.67		
SD	1.86	2.18	2.18	1.90		

Note. N = 323. TUQ = Technology Use Questionnaire. Means in each row with different subscripts are significantly different; so a and b are different, and c and d are different. Means that share subscripts in the same row do not differ significantly.
*p < .05. **p < .01.

Table 9

MANOVA Results for TUQ Channel Use by LDR/GCR Status

Variable	LDR (n = 119)	GCR (n = 204)	F (1, 315)	η^2
TUQ Phone			21.81**	.07
M	5.24	4.46		
SD	1.37	1.63		
TUQ Email			0.97	.00
M	2.25	1.94		
SD	2.09	1.76		
TUQ SNS			0.54	.00
M	3.08	2.91		
SD	1.99	2.02		
TUQ Text			14.25**	.04
M	6.50	6.13		
SD	0.68	0.90		
TUQ IM			1.85	.01
M	3.06	2.54		
SD	2.51	2.33		
TUQ Video			91.99**	.23
M	3.28	1.15		
SD	2.22	1.31		

Note. N = 323. TUQ = Technology Use Questionnaire.
*p < .05. **p < .01.

Thus, H2b and H3b were each partially supported in that significant mean technology channels use differences were detected for attachment styles and LDR/GCR relationships. However, the specific differences hypothesized were not completely supported. For H2b, I hypothesized that the securely attached would report higher usage of each technology channel compared to the dismissingly and fearfully attached participants and that the preoccupiedly attached would report higher use of high sensory input channels (i.e., phone and video chat) than securely, dismissingly, and fearfully attached participants. Results supported the hypothesized higher use of phone for securely attached participants when compared to fearfully attached participants. The

other hypothesized differences between attachment styles were not supported. Notably, the preoccupiedly attached reported significantly lower telephone use than securely attached participants, in direct contrast to the hypothesized direction of the difference. For H3b, I hypothesized that LDR participants would report higher technology use across all channels than GCR participants. This hypothesis was partially supported. LDR participants reported significantly higher use of phone, texting, and video chat than GCR participants, but there was no significant difference for email, SNS, and IM use.

For H2c, I examined the means for each technology channel use within each attachment style to identify any distinct preferences (Table 10). I hypothesized that the securely attached would use all channels equally; the dismissingly attached would display a preference for email, texting, and SNS (i.e., distant channels) over phone, IM, and video chat (i.e., channels high in synchronicity and sensory input); the preoccupiedly attached would display a preference for phone, IM, and video chat over email, texting, and SNS; and the fearfully attached (similar to the dismissingly attached) would display a preference for email, texting, and SNS over phone, IM, and video chat. Because of the within group nature of the hypothesis, I was unable to complete a statistical comparison (e.g., Chi Square Test) of the ratings. To test the hypothesis, I used descriptive statistics (i.e., means and standard deviations) for the technology channels used for each attachment style. For the securely attached, the technology channels use means were ordered as texting, phone, SNS, IM, email, and video chat. For the dismissingly attached, the technology channels use means were ordered as texting, phone, IM, SNS, video chat, and email. For the preoccupiedly attached, the technology channels use means were ordered as texting, phone, SNS, IM, video chat, and email. For fearfully attached

participants, the technology channels use means were ordered as texting, phone, SNS, IM, email, and video chat. For all attachment styles, texting was the most used, followed by phone and then by SNS and IM (in either order), and email and video chat (in either order). In general, the order of channels used did not vary greatly amongst the attachment styles. Thus, H3c was not supported.

Table 10

Means for Technology Channel Use by Attachment Style

Attachment Style	Phone	Email	SNS	Texting	IM	Video Chat
Secure						
M	5.03	2.27	2.87	6.35	2.44	1.81
SD	1.31	1.85	1.89	0.78	2.26	1.86
Dismissing						
M	4.79	1.96	2.88	6.28	3.11	2.09
SD	1.75	1.90	2.32	0.86	2.62	2.17
Preoccupied						
M	4.31	1.30	3.56	6.22	3.51	2.62
SD	1.73	1.58	2.11	0.74	2.37	2.18
Fearful						
M	4.42	2.21	2.98	6.15	2.65	1.67
SD	1.73	2.00	1.95	0.96	2.49	1.90

Summary

For H1, both H1a and H1b were partially supported. For H1a, video chat use contributed unique variance to explaining relationship satisfaction in the LDR model. More specifically, video chat use positively and unique contributed to LDR relationship satisfaction. Contrary to H1a, attachment style and other technology channels did not contribute significantly to LDR relationship satisfaction. Additionally, although unexpected, sexual satisfaction accounted for the highest level (11%) of unique positive variance in LDR relationship satisfaction. For H1b, telephone use, email use, and sexual

satisfaction contributed unique, positive variance to explaining GCR relationship satisfaction. Thus, the variables contributing unique variance differed between the LDR and GCR models; however, the differences were not as I had predicted. For both LDR and GCR participants, at least one technology channel high in synchronicity and sensory input explained unique variance in relationship satisfaction (i.e., video chat in LDRs and telephone in GCRs). The significant contribution of email use (low in synchronicity and sensory input) in GCRs was also unexpected. Lastly, sexual satisfaction contributed significant, unique, positive variance to relationship satisfaction in both the LDR and GCR models, though I only expected the contribution for GCR relationship satisfaction.

For H2, H2a was not supported, because total technology use did not significantly differ among the attachment styles. In contrast, results for H2b revealed significant specific technology use differences amongst the attachment styles, though not all expected differences were supported. More specifically, as expected, the securely attached reported significantly more email use than the preoccupiedly attached and significantly more phone use than the fearfully attached. Unexpectedly, the securely attached reported significantly more phone use than the preoccupiedly attached, whom I had expected to report higher use of high sensory input channels than the other attachment styles. H2c, regarding attachment style preferences for specific technology channels, was not supported. The order of channels, that is, preference, did not seem to greatly differ across the attachment styles.

For H3, H3a was supported. More specifically, LDR participants reported significantly higher total technology use than GCR participants. Further, H3b revealed significant LDR/GCR differences in the use of specific technology channels. That is,

LDR participants reported significantly higher use of telephone, texting, and video chat than GCR participants. However, expected differences for other technology channels (email, SNS, and IM) were not supported.

CHAPTER V

DISCUSSION

In this chapter, I discuss the results of this study. First, I discuss the results from the analysis of the hypotheses. Second, I identify the limitations of this study. Third, I discuss the implications for future counseling psychology research and practice. Fourth, I summarize the study with a brief conclusion.

The LDR descriptive statistics provide meaning for the results. Demographic data indicated that 36.5% of participants identified as being in a LDR. This percentage is consistent with previous research, indicating 25 to 50% of college students are involved in a LDR at any given time (Dellman-Jenkins et al., 1994; Guldner & Swensen, 1995; Stafford, 2005). Clearly LDRs are important to understand given that close to one-third of college students may be in an LDR. In addition, a majority (78. 2%) of LDR participants reported education as the primary reason for engaging in a LDR, followed by work (10.9%), other (9.2%), and military (1.7%). Moreover, as would be expected given that LDR participants are less frequently able to visit with one another face-to-face, LDR participants rated the importance of technology use in their romantic relationship as significantly higher than GCR participants. Also, about half (50.4%) of LDR participants reported face-to-face visits with their partners occurring more than once per month,

whereas 23.5% reported monthly face-to-face visits, and 26.1% reported less than monthly face-to-face visits.

Analysis of the Hypotheses

There were three main hypotheses for this study, each with two to three sub-hypotheses. For H1, I expected that attachment style and technology use would significantly contribute to relationship satisfaction in LDRs and that the contributions of attachment style, technology use, and sexual satisfaction would differ between LDRs and GCRs. For H2, I expected that differences would exist in overall technology use, use of specific technology channels, and preferences for specific technology channels among the attachment styles. For H3, I expected that differences would exist in overall technology use and the use of specific technology channels for LDR and GCR participants. Of note, in a PSYCInfo search, I found that previous research on these combined variables is limited or absent. Therefore, most hypotheses were based on attachment theory and a logical understanding of LDRs. All hypotheses were partially supported.

Hypothesis One (H1) – Contributions to Relationship Satisfaction

I examined the contributions of attachment style, technology channel use, and sexual satisfaction to relationship satisfaction in LDRs (H1a) and in GCRs also, because I expected that the LDR model would differ from the GCR model (H1b). In general, H1 was partially supported; therefore, I discuss both the expected and unexpected findings.

Expected findings. For LDRs, in the final equation, only video chat use and sexual satisfaction contributed significantly, uniquely, and positively to relationship satisfaction. In other words, LDR participants who reported a higher level of video chat

use and higher sexual satisfaction also reported higher relationship satisfaction. This result highlights the possibility that video chat use, a technology that is high in synchronicity and sensory input, has a unique function for developing or maintaining LDR relationship satisfaction. In fact, because partners are able to both see and hear one another, which is not accomplished by other technology channels, video chat is the technology channel with the highest level of sensory input. It could be that channels high in sensory input serve to maintain attachment proximity and, thus, would be expected to contribute more positively to relationship satisfaction, particularly in LDR relationships where physical proximity is a challenge.

Regarding the comparison of the LDR and GCR models, video chat use and sexual satisfaction contributed significant unique variance to LDR relationship satisfaction; whereas phone use, email use, and sexual satisfaction contributed significant unique variance to GCR relationship satisfaction. I had expected that the LDR and GCR models would be different, as is consistent with the findings; however, my specific expectations about these differences was not consistent with the findings (see below).

Unexpected findings. For the LDR model, the significant contribution of sexual satisfaction to LDR relationship satisfaction was not expected. Because LDR partners' sexual contact is limited to physical (vs. virtual) face-to-face visits, I expected that sexual satisfaction might be less important or less optimal in LDRs and not contribute significantly to LDR relationship satisfaction. However, the finding is consistent with previous research, not specifically addressing LDRs, finding a positive relationship between sexual satisfaction and relationship satisfaction (Byers, 2005; Haavio-Mannila & Kontula, 1997; Sprecher, 2002). Additionally, one recent study comparing LDRs and

GCRs indicated equal levels of sexual quality in both types of relationships (Dargie, Blair, Goldfinger, & Pukall, 2015). Consequently, although sexual contact is limited in LDRs, the importance of sexual satisfaction to relationship satisfaction does not appear to be diminished.

In addition, for the LDR model, despite the unexpected finding that only video chat use and sexual satisfaction contributed significant unique variance to the final LDR relationship satisfaction equation, each of the three hierarchical multiple regression steps was significant. For step 1, the combined attachment style ratings explained 9.9% (adjusted 6.6%) of the variance in relationship satisfaction, though no attachment style contributed significant unique variance, in this or any other step. Still, because the equation was significant, researchers and clinicians should be aware that attachment style may matter in LDRs. In addition, my attachment finding differs from previous LDR research (Lee & Pistole, 2012; Roberts & Pistole, 2009) that used different attachment and relational satisfaction measures and found that secure attachment was significantly related to relationship satisfaction. In this study, I obtained continuous ratings of attachment style by using a deconstructed version of the Relationship Questionnaire (Bartholomew & Horowitz, 1991). Although this method has been used in previous studies (Simpson, 1990; Williamson et al., 2002), the RQ-deconstructed attachment style ratings demonstrated low reliability ratings ($\alpha = .58$ to $.68$) for the scores in the present study. Deconstructed RQ ratings were intentionally selected to provide an opportunity to examine secure attachment; other continuous measures of attachment (e.g., Experiences in Close Relationships Scale [ECR]; Brennan et al., 1998) do not directly measure secure

attachment. Nonetheless, the obtained ratings may not be a solid measurement of attachment style.

Further for the LDR model, for step 2, the technology channel usage explained an additional 12% of the variance in relationship satisfaction, with only email and video chat use contributing significant, unique variance. I had expected that the other technology channels would also contribute uniquely to relationship satisfaction. Because technology use explained a significant portion of relationship satisfaction, it may be that overall technology use is a better predictor of relationship satisfaction than the use of a specific technology channel, especially because the availability of technology channels changes quickly. Additionally, recent research suggests there may be mediating and moderating factors in the relatedness of technology use and relationship satisfaction. For example, Hand, Thomas, Buboltz, Deemer, & Buyanjargal (2013) reported a non-significant relationship between SNSs usage and relationship satisfaction but identified intimacy as a significant mediator in this relationship. Similarly, Brody (2013) reported the amount of time since last communicating face-to-face moderated the relatedness of technology use frequency and relationship satisfaction in long-distance friendships. Clearly, additional research on this relationship is warranted.

For the comparison of the LDR and GCR models, I had expected attachment style to contribute unique variance in both final models. For the LDR model, attachment was significant in Step 1, but no style contributed significantly to any step in the model. For the GCR model, significant attachment style contributions at steps 1 and 2 were in the expected directions (i.e., positive for secure, and negative for preoccupied and fearful). However, in the final LDR and GCR equations, attachment style did not contribute

significant unique variance; for GCRs, the significant contribution of secure, fearful, and preoccupied attachment disappeared in the final equation. Thus, unexpectedly, the final models did not differ with regard to attachment style, though the step 1 and 2 LDR/GCR models did differ but not in ways that I expected. This finding may relate to the low observed reliability of the deconstructed RQ scores, as noted above.

In addition, in comparing the LDR and GCR models for technology channel use, I had expected technology channel differences in the final equations. Technology channel differences existed in the significant positive contributions of video chat use to LDR relationship satisfaction and phone and email use to GCR relationship satisfaction. Contrary to my hypothesis, differences in synchronicity and sensory input across channels did not seem to account for the LDR/GCR differences. It could be that additional relationship variables (e.g., intimacy, time since last face-to-face contact; Brody, 2013; Hand et al., 2013) may influence the relatedness of technology use and relationship satisfaction, and these other relationship variables may mediate or moderate LDR/GCR technology use and relationship satisfaction or may better account for the significant findings in this study. Hence, synchronicity and sensory input may not be the only factors influencing LDR/GCR technology channel use differences. Future research could examine this possibility.

Further, unexpectedly in comparing LDRs and GCRs, in both models, sexual satisfaction explained significant, unique, positive variance in relationship satisfaction. Clearly, sexual satisfaction appears to be important in both LDR and GCR relationship satisfaction. Perhaps, this finding is not so surprising given that research consistently

supports a positive relationship between sexual satisfaction and relationship satisfaction (Byers, 2005; Haavio-Mannila & Kontula, 1997; Sprecher, 2002).

Hypothesis Two (H2) – Attachment Style Differences in Technology Use

I examined differences across attachment styles in total technology use (H2a), use of specific technology channels (H2b), and preferences for specific technology channels (H2c). In general, H2 was partially supported.

Expected findings. Regarding the use of specific technology channels, the securely attached reported a significantly higher level of phone use than the fearfully and preoccupiedly attached and a significantly higher level of email use than the preoccupiedly attached. Telephone and email channels vary greatly on the level of synchronicity and sensory input; that is, the phone has more synchronicity (partners speak with each other near simultaneously) and sensory input (i.e., the voice) than email, which can involve a time lag in responsiveness and has no vocal or visual information about the partner. In addition, all the significant differences included higher reports of technology channel use for secure attachment, which is characterized by low levels of anxiety, versus fearful and preoccupied attachment, which are characterized by higher levels of anxiety. It could be that the securely attached, who expect the partner to be accessible as needed, may be more comfortable seeking proximity through technology, whereas persons with more anxious attachments, who have fears about the partner being accessible as needed, prefer more physical or symbolic proximity seeking. Or perhaps the securely attached use technology for proximity maintenance and other purposes, such as more general non-attachment-related communication, thereby accounting for the higher use of phone and email.

Unexpected findings. For total technology use, I found no significant attachment style differences. In other words, the analyses are consistent with all attachment styles using technology at similar rates. If technology use serves as a form of proximity seeking, it would be expected that individuals of differing attachment styles would utilize technology at varying frequencies in order to maintain close or distant proximity as desired; however, this conceptualization was not supported by this finding. It could be that overall technology use does not adequately capture potential differences in technology use between the attachment styles. That is, overall, all attachment styles could utilize technology at the same rate but utilize specific forms of technology at varying rates; however, this idea was not entirely supported by the findings of this study, as described below.

Although some significant attachment style differences were indicated for the use of specific technology channels (e.g., securely attached reporting a significantly higher level of phone use than fearfully and preoccupiedly attached), not all the expected differences were supported. I expected that the securely attached would use more of each technology channel than the dismissingly and fearfully attached, and the preoccupiedly attached would use more sensory input channels (i.e., telephone and video chat) than the securely, dismissingly, and fearfully attached. Contrary to this expectation, there were no significant differences across the technology channels between the securely and dismissingly attached, significant differences between securely attached and preoccupiedly and fearfully attached participants were only found for phone and email use, and preoccupiedly attached participants reported a significantly lower level of telephone use than securely attached participants. Although these findings appear to

support appropriate use of technology for proximity seeking by the securely attached, these findings do not shed light on the potential overuse of technology to maintain constant proximity for the preoccupiedly attached. Research examining the relationship between attachment style and technology channel use (i.e., Drouin & Landgraff, 2012; Jin & Peña, 2010; Morey et al., 2013; Weisskirch, 2012) has been highly contradictory, and the results of this study do not appear to add any clarity this relationship.

My results also did not find attachment style preferences for specific technology channels. That is, specific technology channel preferences seemed to be the same across all attachment styles. Texting and phone use were consistently rated highest for all attachment styles, followed by IM and SNS, and email and video chat. I expected that differences would exist amongst the attachment styles for technology channel use due to the ability of differing technology channels to provide varying levels of synchronicity and sensory input and consequently, varying levels of proximity. However, synchronicity and sensory input levels seemingly do not relate to attachment style as I had expected; so it follows that there were not attachment style differences for preferred technology channels. Although technology channel use may serve as an important method of proximity seeking or maintenance, perhaps variables other than attachment style influence the selection of a particular technology channel. Future research could explore additional variables that may influence the use differing technology channels.

Hypothesis Three (H3) – LDR/GCR Differences in Technology Use

I examined differences in LDR/GCR participants overall technology use (H3a) and the use of specific technology channels (H3b). As most findings were consistent with expectations, they are described below, grouped by hypothesis.

As expected, LDR participants reported significantly higher levels of technology use than GCR participants. Additionally, finding higher LDR technology use is consistent with LDR (vs. GCR) participants rating technology as significantly more important to their relationships. Because LDR partners have limited physical face-to-face communication opportunities, they likely have to use technological communication more heavily than do GCR partners, thus technology may become an integral part of LDR relationships.

In exploring the different technology channels more specifically, LDR participants reported significantly higher levels of phone, texting, and video chat use than GCR participants. Non-significant differences for email, SNS, and IM use were also in the expected direction, with LDR participants reporting higher levels of use that GCR participants. The reasons for significant differences for phone, texting, and video chat use but non-significant differences for email, SNS, and IM use are unclear. However, phone and video chat represent technology channels high in both synchronicity and sensory input, which could be more important to LDRs where opportunities for sensory input via face-to-face contact are limited. Future researchers could explore the gains and losses for LDR (vs. GCR) partners in technological versus face-to-face communication.

Limitations

There are several limitations in this study. First, participants who choose to participate in the online survey may differ in important ways from those who do not participate. For example, individuals who choose to participate may have a higher level of computer or technological skills than those who do not participate, and this level of skills may lead them to be more likely to use technology in their relationships. Another

possibility is that those individuals who choose to participate in this study did so, because they are interested in the study's variables. Second, I used a large, Midwestern university college student sample to examine college student romantic relationships. Because of the geographical area and limited ethnic and racial diversity in this setting, the results may not generalize to non-college populations, other college environments, or persons reflecting racial or ethnic diversity. Specifically, the predominately Caucasian/White, Non-Hispanic sample (79.8%) seems to reflect the university population from which the sample was drawn. For example, in the 2013-2014 fall semester, only 15.7% of all enrolled students identified as racial/ethnic minorities (Purdue University, 2014). Additionally, my sample was largely female (66.6%) and heterosexual/straight (91.7%). Because this study is made up of predominantly White, heterosexual females, it may be difficult to generalize the results of the study to males or racial/ethnic or relational/affectational orientation minorities. Third, this study examines the extent to which participants utilize a variety of forms of technology. Participant technology use may be related to cost and access issues that are not included in this study. Fourth, I also examine sexual satisfaction. Due to the personal, private, and sensitive nature of this information, participants may have chosen to skip items or to report in a socially desirable way. Indeed, several participants (n = 10) skipped the sexual satisfaction measure entirely, despite completing later measures. Also, it seems possible that participants who did not identify as sexually active were uncertain how to approach responding to this measure and, therefore, may have been inadvertently removed from the sample. Fifth, the deconstructed RQ measure may constitute a limitation. The internal consistency estimates (i.e., .58 to .68) were lower than for other attachment measures

such as the ECR, which has alphas coefficients of .90 or above for both the anxiety and avoidance dimensions. I chose to utilize the RQ in order to capture secure attachment directly; however, the low internal consistency estimates may suggest it was not a satisfactory measure. Sixth, in the preliminary analyses, the MANOVA findings for GCRs indicated significant differences for sex, relational/affectational orientation, and dating status. Although these variables may influence the results of the regression analyses, I chose not to control for them in order to be able to compare between the LDR and GCR models. Similarly, there was a large difference in the size of the groups for some demographic comparisons. These findings may not be trustworthy due to the assumption of homogeneity of variance likely being violated. Nonetheless, MANOVA is very robust against such violations (Box & Andersen, 1955; Lindman, 1974). Seventh, 12 LDR responses were identified as extreme univariate outliers as compared to 5 GCR responses. Because the LDR group (n = 119) is smaller than the GRC group (n = 207), the 12 outlier responses represent a larger proportion of the LDR sample than the 5 outlier responses represent in the GCR sample. In this study, I chose to truncate the extreme values in order to maintain power; however, by using this method, I may have lost important differences within the group, and these differences may have influenced the results. Eighth, participants were asked to self-identify as being in an LDR or GCR. Because past research (Stafford, 2005) supports the importance of individual perception in defining LDRs, I did not collect data on geographic distance between partners or barriers to visitation (e.g., income). Such variables may confound LDR results and could be useful to examine in future research. The early LDR research did examine these variables, but college students' perception of the actual distance (e.g., 20 miles), perhaps

in conjunction with money to travel to the partner, as the partner being accessible or inaccessible may function as a mediator or moderator of sexual satisfaction or relationship satisfaction. Given that the ease and use of electronic communication has increased in today's world, it would be worthwhile for current research to examine distance or perceived distance (e.g., on a Likert-scale anchored by "reasonably close" to "way too far away" in investigating LDRs.

Implications for Future Research and Practice

This study was the first combined examination of attachment style, communication across a variety of technology channels, and sexual satisfaction in relation to relationship satisfaction in LDRs and GCRs. Based upon the results of this study, technology use is highly relevant in all romantic relationships, and LDR partners are utilizing technology in important ways that contribute to their overall relationship satisfaction.

With regard to future counseling psychology research, additional knowledge on LDR and GCR technology use would be useful. My study highlights the importance of including a wide variety to technology channels in romantic relationship research. Previous LDR research examined only a limited number of technology channels (e.g., Aguila, 2008; Dainton & Aylor, 2002; Neustaedter & Greenberg, 2011). My findings suggest that focusing on one technology channel may miss important similarities and differences between the technology channels themselves, for example, how synchronicity and sensory input may relate to the influence of technology use on relationship satisfaction. Further, as technology continues to develop, researchers should be alert to exploring the new technology channels as relevant to satisfaction in or even as

maintenance of both LDR and GCR romantic relationships. In addition, it may be useful to explore the costs and benefits associated with utilizing technological communication in lieu of face-to-face communication.

Due to a lack of related research, attachment theory was utilized as a guiding theory in developing the hypotheses for this study, as is appropriate in theory-based research (Strong, 1991). Because attachment is theorized to be relatively stable throughout adulthood (Bowlby, 1973; Fraley, 2002; Hamilton, 2000; Iwaniec & Sneddon, 2001; Waters et al., 2000), I hypothesized that attachment style would influence relationship satisfaction and behaviors (e.g., communication via technology channels). However, contrary to previous research (Mikulincer & Shaver, 2007; Roberts & Pistole, 2009), attachment style did not contribute significantly to LDR or GCR relationship satisfaction. The measurement of attachment style in this study via the deconstructed RQ may have influenced measurement and the results. Future research could examine the same combination of variables using a different continuous attachment measure, such as the ECR. Further, a continuous measure of attachment style that also represents secure attachment would be an important and worthwhile contribution to the literature. Notably, the ECR measures attachment security only indirectly through both the anxiety and avoidant subscale scores being low.

Additionally, the influence of attachment style on technology use was apparent in some of the analyses and not supported in others. These findings suggest a number of empirical questions for future research. For example, based on attachment theory, it is hypothesized that attachment style influences relationship behavior; however, it could be that in some situations (i.e., military deployment) technology and accessibility of the

partner may influence the attachment expectations of an individual and, thus, alter the self-reported attachment style. Also, as technology increasingly becomes an integral part of life, the expression of attachment styles may be somehow different or more complex (e.g., with younger generations of college students) than in the past. For example, in this study, the securely attached in both LDRs and GCRs seemed to prefer using the phone in contact with the partner. It may be that a phone call, in which the person can hear the partner's voice, reflects seeking proximity to the partner in a direct manner, with text or other technologies reflecting less direct proximity seeking through either anxious hyperactivation or avoidant deactivation of the attachment system. The relatedness of attachment style and technology behaviors should be specifically examined in future research and may produce knowledge useful to college counselors.

For GCRs, the preliminary MANOVA findings indicated significant differences for sex, relational/affectational orientation, and dating status on several of the study's variables; primarily, dismissing attachment, frequency face-to-face contact, and relationship satisfaction. I chose not to control for these demographic variables in my analyses in order to maintain the ability to compare the LDR and GCR models. However, future research might provide additional knowledge by further examining how potential differences in the demographic variables could relate to attachment style ratings or relationship satisfaction. Researchers could also examine the variables with diverse partners (e.g., GLBT couples) and married couples, with or without children. Such results might be meaningful for clinicians working with LDR/GCR couples and would add to the individual and cultural diversity knowledge base.

With regard to practice, the results suggest potential indicators of relationship dissatisfaction and points of intervention for both LDR and GCR clients. As noted in previous research, therapists should consider exploring LDR client's perceptions of the distance in their relationship, perhaps including the geographic distance between partners, frequency of visits, and barriers (e.g., financial resources) to visits. Similarly, therapists could assess how LDR clients go about bridging the geographic distance through technology. Technology use, specifically video chat use, appears to play a vital role in LDR relationship satisfaction. When working with LDR clients or couples, it may be important for therapists to assess for the level of technology use in the relationship. Low technology, particularly low video chat, use could be a marker for relationship dissatisfaction. LDR clients who report low relationship satisfaction may benefit from increased use of video chat for relationship communication. Similarly, phone and email use seem important contributors to GCR relationship satisfaction. Therapists working with GCR clients or couples on issues related to relationship dissatisfaction would be wise to explore the use of these technology channels in the relationship. GCR clients who report low relationship satisfaction may benefit from increased use of phone or email for communication or from a discussion of how phone and email communication may be useful in the relationship. Additionally, sexual satisfaction appears to be similarly important across both LDR and GCR relationship satisfaction. Although a lack of opportunity for sexual contact may exist in LDRs, therapists should not assume that sexual satisfaction is lower or unimportant in LDRs. Contrary to this line of thinking, sexual satisfaction appears to be integral to LDR relationship satisfaction. Low sexual satisfaction may indicate that the partners are not addressing sexuality with each other,

have not discovered strategies to provide some sexual satisfaction at a distance (e.g., through use of technology), or are not satisfied with the relationship overall. Further, increased sexual satisfaction may serve to increase relationship satisfaction in both LDRs and GCRs. Thus, therapists working with LDR and GCR clients or couples may benefit from exploring sexual satisfaction within the relationship. Clients who report low sexual satisfaction may benefit from interventions, such as increased self-disclosure (Byers & Demmons, 1999), perhaps through technology usage, that would increase sexual satisfaction and, consequently, relationship satisfaction.

Conclusion

A primary purpose of this study was to examine relationship factors (i.e., attachment style, technology channel use, and sexual satisfaction) that uniquely contribute to LDR and GCR relationship satisfaction. The results indicated that the use of different technology channels contributes uniquely to LDR and GCR relationship satisfaction, with sexual satisfaction contributing to relationship satisfaction in both relationship types. A secondary purpose was to examine attachment style and LDR/GCR differences in the use of technology channels. The results partially supported attachment style differences in the use of specific technology channels; however, synchronicity and sensory technology channels (i.e., example) were not significantly different across attachment styles. On the other hand, LDR partners consistently reported a higher level of technology use than GCR partners. From these results, technology use appears to be an important element in LDRs and may be a useful factor in understanding LDR relationship satisfaction. Additionally, this finding highlights the importance of technology use and sexual satisfaction when working with LDR clients. Future research would be useful to

better understand the unique uses of technology in LDRs, as well as factors, in addition to attachment style, that may influence the decision to use specific technology channels.

REFERENCES

REFERENCES

Aguila, A. P. N. (2011). Living long-distance relationships through computer-mediated communication. *Social Science Diliman, 5,* 83-106.

APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist, 61*, 271-285. doi:10.1037/0003-066X.61.4.271

Arditti, J. A., & Kauffman, M. (2003). Staying close when apart: Intimacy and meaning in long-distance dating relationships. In M. Coleman & L. Ganong (Eds.), *Points and counterpoints: Controversial relationships and family issues in the 21st century* (pp. 51-55). Los Angeles: Roxbury.

Attridge, M., Berscheid, E., & Simpson, J. A. (1995). Predicting relationship stability from both partners versus one. *Journal of Personality and Social Psychology, 69,* 254-268. doi:10.1037/0022-3514.69.2.254

Aylor, B. A. (2003). Maintaining long-distance relationships. In D. J. Canary & M. Dainton (Eds.), *Maintaining relationships through communication: Relational, contextual, and cultural variations* (pp. 127-139). Mahwah, NJ: Lawrence Erlbaum.

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7*, 147-178. doi:10.1177/0265407590072001

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61,* 226-244. doi:10.1037/0022-3514.61.2.226

Bartholomew, K., & Shaver, P. R. (1998). Methods of assessing adult attachment: Do they converge? In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 25-45). New York, NY: Guilford.

Bergen, K. M. (2010). Accounting for difference: Commuter wives and the master narrative of marriage. *Journal of Applied Communication Research, 38*, 47-64. doi:10.1080/00909880903483565

Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York: Basic Books.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger.* New York: Basic Books.

Bowman, M. L. (1990). Coping efforts and marital satisfaction: Measuring marital coping and its correlates. *Journal of Marriage and the Family, 52,* 463-474. doi:10.2307/353040

Box, G. E., & Andersen, S. L. (1955). Permutation theory in the derivation of robust criteria and the study of departures from assumption. *Journal of the Royal Statistical Society. Series B (Methodological),* 1-34.

Boyd, D. M., & Elison, N. B. (2008). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13,* 210-230. doi:10.1111/j.1083-6101.2007.00393.x

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York, NY: Guilford.

Brenner, J. (2013a). *Pew Internet: Mobile.* Pew Internet & American Life Project. Retrieved from http://pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx

Brenner, J. (2013b). *Pew Internet: Social networking (full detail)*. Pew Internet & American Life Project. Retrieved from http://pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-full-detail.aspx

Brody, N. (2013). Absence — and mediated communication — makes the heart grow fonder: Clarifying the predictors of satisfaction and commitment in long-distance friendships. *Communication Research Reports, 30*, 323-332. doi:10.1080/08824096.2013.837388

Bruner, M. R., Kuryluk, A. D., & Whitton, S. W. (2015) Attention-deficit/hyperactivity disorder symptom levels and romantic relationship quality in college students, *Journal of American College Health, 63,* 98-108. doi:10.1080/07448481.2014.975717

Byers, E. S. (2005). Relationship satisfaction and sexual satisfaction: A longitudinal study of individuals in long-term relationships. *Journal of Sex Research, 42,* 113-118. doi:10.1080/00224490509552264

Byers, E. S., & Demmons, S. (1999). Sexual satisfaction and sexual self-disclosure within dating relationships. *Journal of Sex Research, 36,* 180-189.

Byers, E. S., Demmons, S., & Lawrance, K. A. (1998). Sexual satisfaction within dating relationships: A test of the interpersonal exchange model of sexual satisfaction. *Journal of Social and Personal Relationships, 15*, 257-267. doi:10.1177/0265407598152008

Calmes, C. A., & Roberts, J. E. (2008). Rumination in interpersonal relationships: Does Co-rumination explain gender differences in emotional distress and relationship satisfaction among college students?. *Cognitive Therapy and Research, 32*, 577-590. doi:10.1007/s10608-008-9200-3

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159. doi:10.1037/0033-2909.112.1.155

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78*(1), 98-104. doi:10.1037/0021-9010.78.1.98

Cramer, D. (2004). Emotional support, conflict, depression, and relationship satisfaction in a romantic partner. *The Journal of Psychology, 138*, 532-542. doi:10.3200/JRLP.138.6.532-542

Cusack, C. E., Hughes, J. L., & Cook, R. E. (2012). Components of love and relationship satisfaction: Lesbians and heterosexual women. *Psi Chi Journal of Psychological Research, 17,* 171-179.

Dainton, M., & Aylor, B. (2002). Patterns of communication channel use in the maintenance of long-distance relationships. *Communication Research Reports, 19*, 118-129. doi:10.1080/08824090209384839

Dargie, E., Blair, K. L., Goldfinger, C., & Pukall, C. F. (2015). Go long! Predictors of positive relationship outcomes in long-distance dating relationships. *Journal of Sex & Marital Therapy, 41*, 181-202. doi: 10.1080/0092623X.2013.864367

Davis, D., Shaver, P. R., & Vernon, M. L. (2004). Attachment style and subjective motivations for sex. *Personality and Social Psychology Bulletin, 30*, 1076-1090. doi:10.1177/0146167204264794

Dellmann-Jenkins, M., Bernard-Paolucci, T. S., & Rushing, B. (1994). Does distance make the heart grow fonder? A comparison of college students in long-distance and geographically close dating relationships. *College Student Journal, 28*, 212-219.

Drouin, M., & Landgraff, C. (2012). Texting, sexting, and attachment in college students' romantic relationships. *Computers in Human Behavior, 28,* 444-449. doi:10.1016/j.chb.2011.10.015

Farr, R. H., Forssell, S. L., & Patterson, C. J. (2010). Gay, lesbian, and heterosexual adoptive parents: Couple and relationship issues. *Journal of GLBT Family Studies, 6,* 199-213. doi:10.1080/15504281003705436

Fraley, R. C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review, 6,* 123-151. doi:10.1207/S15327957PSPR0602_03

Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with Couples Satisfaction Index. *Journal of Family Psychology, 21,* 572-583. doi:10.1037/0893-3200.21.4.572

Gelso, J., & Fretz, R. (2001). *Counseling psychology* (2nd ed.). New York: Brooks Cole.

Graham, J. M., Diebels, K. J., & Barnow, Z. B. (2011). The reliability of relationship satisfaction: A reliability generalization meta-analysis. *Journal of Family Psychology, 25,* 39-48. doi:10.1037/a0022441

Greenberg, S., & Neustaedter, C. (2013). Shared living, experiences, and intimacy over video chat in long distance relationships. In C. Neustaedter, S. Harrison, & A. J. Sellen (Eds.), *Connecting families* (pp. 37-53). London: Springer.

Guldner, G. T. (1996). Long-distance romantic relationships: Prevalence and separation-related symptoms in college students. *Journal of College Student Development, 37,* 289-296.

Guldner, G. T. (2004). *Long distance relationships: The complete guide*. Corona, CA: JF Milne.

Guldner, G. T., & Swensen, C. H. (1995). Time spent together and relationship quality: Long-distance relationships as a test case. *Journal of Social and Personal Relationships, 12,* 313-320. doi:10.1177/0265407595122010

Haavio-Mannila, E., & Kontula, O. (1997). Correlates of increased sexual satisfaction. *Archives of Sexual Behavior, 26,* 399-419. doi:10.1023/A:1024591318836

Hamilton, C. E. (2000). Continuity and discontinuity of attachment from infancy through adolescence. *Child Development, 71,* 690-694. doi:10.1111/1467-8624.00177

Hand, M. M., Thomas, D., Buboltz, W. C., Deemer, E. D., & Buyanjargal, M. (2013). Facebook and romantic relationships: Intimacy and couple satisfaction associated with online social network use. *Cyberpsychology, Behavior, and Social Networking, 16,* 8-13. doi:10.1089/cyber.2012.0038

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511-524. doi: 10.1037/0022-3514.52.3.511

Heavey, C. L., Larson, B. M., Zumtobel, D. C., & Christensen, A. (1996). The Communication Patterns Questionnaire: The reliability and validity of a constructive communication subscale. *Journal of Marriage and the Family, 58,* 796-800. doi:10.2307/353737

Helgeson, V. S. (1994). Long-distance romantic relationships: Sex differences in adjustment and breakup. *Personality and Social Psychology Bulletin, 20*, 254-265. doi:10.1177/0146167294203003

Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family, 50*, 93-98. doi:10.2307/352430

Hendrick, S. S., Hendrick, C., & Adler, N. L. (1988). Romantic relationships: Love, satisfaction, and staying together. *Journal of Personality and Social Psychology, 54*, 980. doi: 10.1037/0022-3514.54.6.980

Holt, P. A., & Stone, G. L. (1988). Needs, coping strategies and coping outcomes associated with long-distance relationships. *Journal of College Student Development, 29*, 136-41.

Hudson, W. W., Harrison, D. F., & Crosscup, P. C. (1981). A short-form scale to measure sexual discord in dyadic relationships. *Journal of Sex Research, 17*, 157-174. doi:10.1080/00224498109551110

Iwaniec, D., & Sneddon, H. (2001). Attachment style in adults who failed to thrive as children: Outcomes of a 20-year follow-up study of factors influencing maintenance or change in attachment style. *British Journal of Social Work, 31*, 179-195. doi:10.1093/bjsw/31.2.179

Jackson, A. P., Brown, R. P., & Patterson-Stewart, K. E. (2000). African Americans in dual-career commuter marriages: An investigation of their experiences. *The Family Journal, 8*, 22-36. doi:10.1177/1066480700081005

Jin, B., & Peña, J. F. (2010). Mobile communication in romantic relationships: Mobile phone use, relational uncertainty, love, commitment, and attachment styles. *Communication Reports, 23,* 39-51. doi:10.1080/08934211003598742

Johnson, S. E. (1987). Weaving the threads: Equalizing professional and personal demands faced by commuting career couples. *Journal of the National Association of Women Deans, Administrators, and Counselors, 50,* 3-10.

Johnson, A. J., Haigh, M. M., Becker, J. A., Craig, E. A., & Wigley, S. (2008). College students' use of relational management strategies in email in long-distance and geographically close relationships. *Journal of Computer-Mediated Communication,* 13, 381-404. doi: 10.1111/j.1083-6101.2008.00401.x

Jones, S. (2002). *The internet goes to college: How students are living in the future with today's technology.* Pew Internet & American Life Project. Retrieved from: http://www.pewinternet.org/~/media/Files/Reports/2002/PIP_College_Report.pdf.pdf

Kaslow, F. W. (2001). Families and family psychology at the millennium. *American Psychologist, 56,* 37-46. doi:10.1037/0003-066X.56.1.37

Kurdek, L. A. (1994). Conflict resolution styles in gay, lesbian, heterosexual nonparent, and heterosexual parent couples. *Journal of Marriage and the Family, 56,* 705-722. doi:10.2307/352880

Lawrance, K., & Byers, E. S. (1992, May). *Sexual satisfaction: A social exchange perspective.* Paper presented at the annual meeting of the Canadian Psychological Association, Quebec.

Lawrance, K. A., & Byers, E. S. (1995). Sexual satisfaction in long-term heterosexual relationships: The interpersonal exchange model of sexual satisfaction. *Personal Relationships, 2,* 267-285. doi:10.1111/j.1475-6811.1995.tb00092.x

Lawrance, K. A., & Byers, E. S. (1998). Interpersonal exchange model of sexual satisfaction questionnaire. In C. M. Davis, W. L. Yarber, & S. L. Davis (Eds.), *Sexuality related measures: A compendium* (pp. 514-519). Department of Health & Safety Education.

Le, B., & Agnew, C. R. (2003). Commitment and its theorized determinants: A meta-analysis of the investment model. *Personal Relationships, 10,* 37-57. doi:10.1111/1475-6811.00035

Lee, J. Y., & Pistole, M. C. (2012). Predictors of satisfaction in geographically close and long-distance relationships. *Journal of Counseling Psychology, 59,* 303-313. doi:10.1037/a0027563

Lenhart, A. (2010). *Cell phones and American adults*. Pew Internet & American Life Project. Retrieved from http://www.pewinternet.org/Reports/2010/Cell-Phones-and-American-Adults/Part-1-Adults-and-cell-phones-Ownership-and-use/Uses-of-the-phone.aspx

Levy, K. N., Blatt, S. J., & Shaver, P. R. (1998). Attachment styles and parental representations. *Journal of Personality and Social Psychology, 74*, 407-419. doi:10.1037/0022-3514.74.2.407

Lindman, H. R. (1974). *Analysis of variance in complex experimental designs.* Oxford, England: W. H. Freeman & Co.

Locke, H. J., & Wallace, K. M. (1959). Short marital-adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living, 21*, 251-255. doi:10.2307/348022

Lopez, F. G., & Brennan, K. A. (2000). Dynamic processes underlying adult attachment organization: Toward an attachment theoretical perspective on the healthy and effective self. *Journal of Counseling Psychology, 47,* 283-300. doi:10.1037/0022-0167.47.3.283

Matsuoka, N., Uji, M., Hiramura, H., Chen, Z., Shikai, N., Kishida, Y., & Kitamura, T. (2006). Adolescents' attachment style and early experiences: A gender difference. *Archives Of Women's Mental Health*, *9*(1), 23-29. doi:10.1007/s00737-005-0105-9

Mikulincer, M., & Goodman, G. S. (2006). *Dynamics of romantic love: Attachment, caregiving, and sex*. New York, NY: Guilford Press.

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York, NY: Guilford Press.

Morey, J. N., Gentzler, A. L., Creasy, B., Oberhauser, A. M., & Westerman, D. (2013). Young adults' use of communication technology within their romantic relationships and associations with attachment style. *Computers in Human Behavior, 29*, 1771-1778. doi:10.1016/j.chb.2013.02.019

Neustaedter, C., & Greenberg, S. (2011). *Intimacy in Long-Distance Relationships over Video Calling.* Unpublished manuscript, Department of Computer Science, University of Calgary, Calgary, AB, Canada.

Nielsen Company. (2012). *The Nielsen U.S. Social Media Survey 2012*. Retrieved from http://www.nielsen.com/us/en/reports/2012/state-of-the-media-the-social-media-report-2012.html

Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and the Family, 45,* 141-151. doi:10.2307/351302

Osborne, J. W. & Overbay, A. (2004). The power of outliers (and why researchers should always check for them). *Practical Assessment, Research & Evaluation, 9*(6). Retrieved March 28, 2015 from http://PAREonline.net/getvn.asp?v=9&n=6

Pew Internet & American Life Project. (2013a). *Demographics of internet users*. Retrieved from http://pewinternet.org/Static-Pages/Trend-Data-(Adults)/Whos-Online.aspx

Pew Internet & American Life Project. (2013b). *Trend data (Adults): Internet adoption, 1995-2013*. Retrieved from http://www.pewinternet.org/Trend-Data-(Adults)/Internet-Adoption.aspx

Pistole, M. C. (2010). Long-distance romantic couples: An attachment theory perspective. *Journal of Marital and Family Therapy, 36*, 115-125. doi:10.1111/j.1752-0606.2009.00169.x

Pistole, M. C., Roberts, A., & Chapman, M. L. (2010). Attachment, relationship maintenance, and stress in long distance and geographically close romantic relationships. *Journal of Social and Personal Relationships, 27*, 535-552. doi:10.1177/0265407510363427

Pistole, M. C., Roberts, A., & Mosko, J. E. (2010). Commitment predictors: Long-distance versus geographically close relationships. *Journal of Counseling & Development, 88*, 146-153. doi:10.1002/j.1556-6678.2010.tb00003.x

Purdue University, Office of Enrollment Management. (2014). *Data Digest* [Data file]. Retrieved from http://www.purdue.edu/datadigest/Diversity/index.html

Radicati Group. (2012). *Email statistics report, 2012-2016*. Retrieved from http://www.radicati.com/wp/wp-content/uploads/2012/04/Email-Statistics-Report-2012-2016-Executive-Summary.pdf

Rhodes, A. R. (2002). Long-distance relationships in dual-career commuter couples: A review of counseling issues. *The Family Journal, 10*, 398-404. doi:10.1177/106648002236758

Roberts, A., & Pistole, M. C. (2009). Long-distance and proximal romantic relationship satisfaction: Attachment and closeness predictors. *Journal of College Counseling, 12*, 5-17. doi: 10.1002/j.2161-1882.2009.tb00036.x

Rohfling, M. (1995). "Doesn't anybody stay in one place anymore?" An exploration of the under-studied phenomenon of long-distance relationships. In J. Wood & S. W. Duck (Eds.), *Under-studied relationships: Off the beaten track* (pp. 173-196). Thousand Oaks, CA: Sage.

Rosario, M., Reisner, S. L., Corliss, H. L., Wypij, D., Frazier, A. L., & Austin, S. B. (2014). Disparities in depressive distress by sexual orientation in emerging adults: The roles of attachment and stress paradigms. *Archives of sexual behavior, 43*, 901-916.

Ruppel, E. K., & Curran, M. A. (2012). Relational sacrifices in romantic relationships: Satisfaction and the moderating role of attachment. *Journal of Social and Personal Relationships, 29,* 508-529. doi:10.1177/0265407511431190

Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The investment model scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationship, 5,* 357-391. doi:10.1111/j.1475-6811.1998.tb00177.x

Sahlstein, E. M. (2004). Relating at a distance: Negotiating being together and being apart in long-distance relationships. *Journal of Social and Personal Relationships, 21,* 689-710. doi:10.1177/0265407504046115

Scharfe, E., & Bartholomew, K. (1994). Reliability and stability of adult attachment patterns. *Personal relationships, 1,* 23-43. doi:10.1111/j.1475-6811.1994.tb00053.x

Shaver, P., Hazan, C., & Bradshaw, D. (1988). Love as attachment. In R. J. Sternberg, & M. L. Barnes (Eds.), *The psychology of love* (pp. 68-99). New Haven, CT: Yale University Press.

Shiu, E., & Lenhart, A. (2004). *How Americans use instant messaging. Pew Internet & American Life Project.* Retrieved from http://www.pewinternet.org/~/media/Files/Reports/2004/PIP_Instantmessage_Report.pdf.pdf

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology, 59,* 971-980. doi:10.1037/0022-3514.59.5.971

Smith, A. (2012). *The best (and worst) of mobile connectivity*. Pew Internet & American Life Project. Retrieved from http://pewinternet.org/Reports/2012/Best-Worst-Mobile.aspx

Soper, D.S. (2013). A-priori sample size calculator for multiple regression [Software]. Available from http://www.danielsoper.com/statcalc

Soper, D.S. (2015). Post-hoc statistical power calculator for hierarchical multiple regression [Software]. Available from http://www.danielsoper.com/statcalc

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38,* 15-28. doi:10.2307/350547

Sprecher, S. (2002). Sexual satisfaction in premarital relationships: Associations with satisfaction, love, commitment, and stability. *Journal of Sex Research, 39,* 190-196. doi:10.1080/00224490209552141

Sprecher, S., & Cate, R. M. (2004). Sexual satisfaction and sexual expression as predictors of relationship satisfaction and stability. In J. H. Harvey, A Wenzel, & S. Sprecher (Eds.), *The handbook of sexuality in close relationships* (pp. 235-256). Mahwah, NJ: Erlbaum.

Stafford, L. (2005). *Maintaining long-distance and cross-residential relationships*. Mahwah, NJ: Erlbaum.

Stafford, L. (2010). Geographic distance and communication during courtship. *Communication Research, 37*, 275-297. doi:10.1177/0093650209356390

Stafford, L., Kline, S. L., & Dimmick, J. (1999). Home e-mail: Relational maintenance and gratification opportunities. *Journal of Broadcasting & Electronic Media, 43*, 659-669. doi:10.1080/08838159909364515

Stafford, L., & Merolla, A. J. (2007). Idealization, reunions, and stability in long-distance dating relationships. *Journal of Social and Personal Relationships, 24*, 37-54. doi:10.1177/0265407507072578

Stafford, L., & Reske, J. R. (1990). Idealization and communication in long-distance premarital relationships. *Family Relations, 39*, 274-79. doi:10.2307/584871

Stephen, T. (1986). Communication and interdependence in geographically separated relationships. *Human Communication Research, 13*, 191-210. doi:10.1111/j.1468-2958.1986.tb00102.x

Sternberg, R. J. (1997). Construct validation of a triangular love scale. *European Journal of Social Psychology, 27*, 313-335. doi: 10.1002/(SICI)1099-0992(199705)27:3<313::AID-EJSP824>3.0.CO;2-4

Strong, S. R. (1991). Theory-driven science and naive empiricism in counseling psychology. *Journal of Counseling Psychology, 38*, 204.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Allyn & Bacon/ Pearson Education

Van Horn, K. R., Arnone, A., Nesbitt, K., Desilets, L., Sears, T., Giffin, M., and Brudi, R. (1997). Physical distance and interpersonal characteristics in college students' romantic relationships. *Personal Relationships, 4*, 25-34. doi:10.1111/j.1475-6811.1997.tb00128.x

Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child Development, 71*, 684-689. doi:10.1111/1467-8624.00176

Weisskirch, R. S. (2012). Women's adult romantic attachment style and communication by cell phone with romantic partners. *Psychological Reports, 111*, 281-288. doi:10.2466/21.02.20.PR0.111.4.281-288

Westefeld, J. S., & Liddell, D. (1982). Coping with long-distance relationships. *Journal of College Student Personnel, 23*, 550-551.

Whitton, S. W., & Kuryluk, A. D. (2012). Relationship satisfaction and depressive symptoms in emerging adults: Cross-sectional associations and moderating effects of relationship characteristics. *Journal of Family Psychology, 26*, 226-235. doi:10.1037/a0027267

Williamson, G. M., Walters, A. S., & Shaffer, D. R. (2002). Caregiver models of self and others, coping, and depression: Predictors of depression in children with chronic pain. *Health Psychology, 21*, 405-410. doi:10.1037/0278-6133.21.4.405

APPENDICES

Appendix A

Purdue IRB Approval

PURDUE UNIVERSITY

HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARDS

To:	MARY PISTOLE BRNG 5176
From:	JEANNIE DICLEMENTI, Chair Social Science IRB
Date:	03/14/2014
Committee Action:	**Exemption Granted**
IRB Action Date:	03/14/2014
IRB Protocol #:	1401014392
Study Title:	Explaining Relationship Satisfaction: Attachment, Technology Use, and Sexual Satisfaction in Long-Distance Relationships

The Institutional Review Board (IRB) has reviewed the above-referenced study application and has determined that it meets the criteria for exemption under 45 CFR 46.101(b)(2) .

If you wish to make changes to this study, please refer to our guidance "**Minor Changes Not Requiring Review**" located on our website at http://www.irb.purdue.edu/policies.php. For changes requiring IRB review, please submit an **Amendment to Approved Study** form or **Personnel Amendment to Study** form, whichever is applicable, located on the forms page of our website www.irb.purdue.edu/forms.php. Please contact our office if you have any questions.

Below is a list of best practices that we request you use when conducting your research. The list contains both general items as well as those specific to the different exemption categories.

General

- To recruit from Purdue University classrooms, the instructor and all others associated with conduct of the course (e.g., teaching assistants) must not be present during announcement of the research opportunity or any recruitment activity. This may be accomplished by announcing, in advance, that class will either start later than usual or end earlier than usual so this activity may occur. It should be emphasized that attendance at the announcement and recruitment are voluntary and the student's attendance and enrollment decision will not be shared with those administering the course.
- If students earn extra credit towards their course grade through participation in a research project conducted by someone other than the course instructor(s), such as in the example above, the students participation should only be shared with the course instructor(s) at the end of the semester. Additionally, instructors who allow extra credit to be earned through participation in research must also provide an opportunity for students to earn comparable extra credit through a non-research activity requiring an amount of time and effort comparable to the research option.
- When conducting human subjects research at a non-Purdue college/university, investigators are urged to contact that institution's IRB to determine requirements for conducting research at that institution.
- When human subjects research will be conducted in schools or places of business, investigators must obtain written permission from an appropriate authority within the organization. If the written permission was not

submitted with the study application at the time of IRB review (e.g., the school would not issue the letter without proof of IRB approval, etc.), the investigator must submit the written permission to the IRB prior to engaging in the research activities (e.g., recruitment, study procedures, etc.). This is an institutional requirement.

Category 1

- When human subjects research will be conducted in schools or places of business, investigators must obtain written permission from an appropriate authority within the organization. If the written permission was not submitted with the study application at the time of IRB review (e.g., the school would not issue the letter without proof of IRB approval, etc.), the investigator must submit the written permission to the IRB prior to engaging in the research activities (e.g., recruitment, study procedures, etc.). This is an institutional requirement.

Categories 2 and 3

- Surveys and questionnaires should indicate
  - only participants 18 years of age and over are eligible to participate in the research; and
  - that participation is voluntary; and
  - that any questions may be skipped; and
  - include the investigator's name and contact information.
- Investigators should explain to participants the amount of time required to participate. Additionally, they should explain to participants how confidentiality will be maintained or if it will not be maintained.
- When conducting focus group research, investigators cannot guarantee that all participants in the focus group will maintain the confidentiality of other group participants. The investigator should make participants aware of this potential for breach of confidentiality.
- When human subjects research will be conducted in schools or places of business, investigators must obtain written permission from an appropriate authority within the organization. If the written permission was not submitted with the study application at the time of IRB review (e.g., the school would not issue the letter without proof of IRB approval, etc.), the investigator must submit the written permission to the IRB prior to engaging in the research activities (e.g., recruitment, study procedures, etc.). This is an institutional requirement.

Category 6

- Surveys and data collection instruments should note that participation is voluntary.
- Surveys and data collection instruments should note that participants may skip any questions.
- When taste testing foods which are highly allergenic (e.g., peanuts, milk, etc.) investigators should disclose the possibility of a reaction to potential subjects.

Appendix B

Recruitment Email

Subject Header: Purdue study on romantic relationships

Dear Student,

We are inviting you to participate in our research examining people's perceptions of their romantic relationships. This research will help us to have a better understanding of important romantic relationships. In order to participate, you need to currently be involved in a romantic relationship, even if you have only recently begun dating this person, and you need to be at least 18 years old. If you choose to participate, you will be asked some questions about your thoughts and feelings related to your relationship. This research project is being conducted by a doctoral candidate, Amanda Bloom, M.S.Ed., and by M. Carole Pistole, Ph.D. of the Department of Educational Studies at Purdue University.

By taking this survey, you will have a chance to win a $25 gift card; the odds of winning are 1:200. Your answers will be anonymous. Results will be reported as aggregate data, and your responses cannot be identified as yours. You may skip any questions that make you uncomfortable or that you do not wish to answer. You may withdraw at any time, without penalty. If you do not wish to participate, simply ignore this email and the reminder email that you will receive in about a week.

Your participation in this research project would be greatly appreciated. If you are interested in participating in this study, you can access this survey at: https://purdue.qualtrics.com/SE/?SID=SV_20lxJ84IIqHUwcd

If you have any questions concerning this research study, please do not hesitate to contact us. This study has been approved by the Institutional Review Board at Purdue University.

Thank you for considering our invitation.

Sincerely,

Amanda Bloom, M.S.Ed. (bloom0@purdue.edu)
M. Carole Pistole, Ph.D. (pistole@purdue.edu), 765-494-9744
Counseling Psychology Program
Dept. of Educational Studies
Purdue University

Appendix C

Recruitment Reminder Email

Subject Header: Purdue study on romantic relationships

Dear Student,

This is a reminder of our previous invitation to you to participate in our research examining people's perceptions of their romantic relationships. This research will help us to have a better understanding of important romantic relationships. In order to participate, you need to currently be involved in a romantic relationship, even if you have only recently begun dating this person, and you also need to be at least 18 years old. If you choose to participate, you will be asked some questions about your thoughts and feelings related to your relationship. This research project is being conducted by a doctoral candidate, Amanda Bloom, M.S.Ed., and by M. Carole Pistole, Ph.D. of the Department of Educational Studies at Purdue University.

By taking this survey, you will have a chance to win a $25 gift card; the odds of winning are 1:200. Your answers will be completely anonymous. Results will be reported as aggregate data, and your responses cannot be identified as yours. You may skip any questions that make you uncomfortable or that you do not wish to answer. You may withdraw at any time, without penalty. If you do not wish to participate, simply ignore this email.

Your participation in this research project would be greatly appreciated. If you are interested in participating in this study, you can access this survey at: https://purdue.qualtrics.com/...

If you have any questions concerning this research study, please do not hesitate to contact us. This study has been approved by the Institutional Review Board at Purdue University.

Thank you for considering our invitation.

Sincerely,

Amanda Bloom, M.S.Ed. (bloom0@purdue.edu)
M. Carole Pistole, Ph.D. (pistole@purdue.edu), 765 494-9744
Counseling Psychology Program
Dept. of Educational Studies
Purdue University

Appendix D

Information Letter

Explanation of Study

Greetings! We are asking you to participate in a study of students' perceptions of their romantic relationships and relationship behavior. You will be asked some questions about your current relationship, as well as your thoughts, feelings, and behaviors related to that relationship. This research project is being conducted by a doctoral student, Amanda Bloom, M.S.Ed., and by M. Carole Pistole, Ph.D. of the Department of Educational Studies at Purdue University. This study involves the completion of brief questionnaires about your behaviors and perceptions, and will take you about 15 to 20 minutes to complete.

Your participation in the research is completely voluntary, and refusal to participate will involve no penalty or loss to you. You may terminate your participation at any time, and you can skip any items. To participate, you MUST be at least 18 years old and be in a romantic relationship.

Risks and Discomforts

No discomfort or emotional distress is expected from this research. The risks of participating are not greater than those ordinarily encountered in daily life, for instance, when you are talking about your relationships with your friends. However, if you have distressing feelings after completing these questionnaires and feel that you may need to talk with someone, you can contact the Counseling and Psychological Services clinic (CAPS) on campus at 765-494-6995. Breach of confidentiality is a risk associated with participation in this research study. However, the risk of a breach of security is minimal and involves no more exposure to a security threat than would otherwise be expected when using the internet.

Compensation

You will be offered an incentive for participating in this web survey. We will provide $25 gift cards for Amazon.com to approximately three participants in a random drawing. The odds of winning one of the gift cards is dependent on the number of responses received but will be no less than 1 in 200. Chances of winning are equal for every participant. Because no identifying information is obtained from you, no IP addresses will be recorded or obtained. Once the submit button is clicked, you will be guided to a separate website where you will be asked to enter your email address for the drawing, if you choose to do so. This site will be deleted after the drawing.

Benefits

The information you provide will be a valuable contribution in helping us to better examine the link between technology use and people's relationship behavior. The results of our research may be used to improve romantic relationship knowledge. There are no direct benefits for participation in this survey. However, you may benefit from increased knowledge of yourself and your perceptions as well as increased knowledge of social science research.

Confidentiality and Records

No identifying information is included in the survey questionnaires, and email addresses will not be linked with responses. Your responses are anonymous. Only the university researchers will see your responses, and your responses cannot be identified as yours or linked to your email address should you choose to provide it to participate in the drawing. Your IP address will not be collected or used for any purposes. It is important to note that the research records may be reviewed by the Office of Human Protections and by departments at Purdue University responsible for regulatory and research oversight.

Contact Information

If you have any questions about the study or your participation in it, please feel free to contact Amanda Bloom at bloom0@purdue.edu. If you have any questions about your rights as a research participant, you can contact the Human Research Protection Program at Purdue University in Ernest C. Young Hall, Room 1032, West Lafayette, IN 47907-2040. The phone number is 765-494-5942. The email address is irb@purdue.edu.

If you agree to participate, please click on the "I wish to participate" button, complete the following survey, and click on the "submit" button to submit your responses. Thank you for your time!

Appendix E

Demographic Information

Please complete the following information.
Age: _____

Sex (please check one):
____ Female
____ Male

Race/ethnicity:
____ African/Black, Non-Hispanic
____ Asian
____ Caucasian/White, Non-Hispanic
____ Latino(a), Chicano(a)
____ Native American/American Indian
____ Pacific Islander
____ Multiracial/multiethnic
____ Other

International student:
____ Yes (specify country of origin_____)
____ No

If you are an international student, do you have family or a romantic partner in your country of origin?
___ Yes
____No

If you are an international student, do you plan to return to your country of origin after completing your studies?
____ Yes
____ No

Education level:
____ First year undergraduate
____ Sophomore
____ Junior
____ Senior
____ Graduate Student

Relational/Affectional Orientation:
____ Heterosexual/straight
____ Gay Man
____ Lesbian
____ Bisexual
____ Questioning
____ Other _____

Dating status — please check the item that best describes your *current* status:
___ Single, Not dating
___ Dating, Casually
___ Dating, Seriously
___ Partnered/In a relationship
___ Engaged
___ Married or married-like
___ Polyamorous
___ Separated
___ Divorced
___ Widowed

Please indicate how long you have been in your current romantic relationship. If less than 1 month, please enter 1 month. If less than 1 year, please enter 0 for years and then enter the number of months.
_____ Years _____ Months

How often are you able to see your partner face-to-face?
___ Never
___ Few times a year
___ Once a month
___ Few times a month
___ Once a week
___ Few times a week
___ For a short period of time each day
___ Several hours each day

How important would you rate the use of technology in your romantic relationship?
1 2 3 4 5 6 7
Not at all Important
Very Important

Are you currently in a long-distance relationship? *A long-distance relationship is one in which your partner lives far enough away from you that it would be very difficult or impossible for you to see him or her every day (Guldner & Swensen, 1995, p. 316).*
___ Yes
___ No

If you are in a long-distance relationship:
Reason for long-distance relationship:
____ Education
____ Military
____ Work
____ Other _____

On average, how often do you – physically – visit with your partner:
____ Less than once per month
____ Once per month
____ More than once per month

Are you currently in the military?
____ Yes
____ No

Is your partner in the military?
____ Yes
____ No

Are you, your partner, or both of you currently deployed?
___ Yes
___ No

Appendix F

Instructions

Please take a moment and recall the most recent, most important romantic relationship(s) in which you have been involved. For this relationship, think about: How happy or unhappy you were, How your moods fluctuated, How much you trusted or distrusted each other, Whether you felt you were too close emotionally or not close enough, The amount of jealousy you felt, How attracted you were to the person, How the relationship might have been better. (Thinking about these good and bad memories will help you in answering the following questions accurately.)

Now think again of your current love relationship. All the following questionnaires are concerned with your experiences in that love relationship.

In responding, please try to give the response that most accurately describes you or your beliefs and behavior in this same relationship. Remember there are no right or wrong, good or bad answers.

Appendix G

Relationship Questionnaire

(Bartholomew & Horowitz, 1991)

Directions: Please read each description below and **select the *one* style that *best* describes you** or is closest to the way you are in your current romantic relationship.

A. It is easy for me to become emotionally close to others. I am comfortable depending on others and having others depend on me. I don't worry about being alone or having others not accept me.

B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

Appendix H

Relationship Questionnaire

(Bartholomew & Horowitz, 1991)

Directions: Respond to each statement by indicating how much you agree or disagree with it. Select the number using the following rating scale:

1- - - - - - - -2- - - - - - - -3- - - - - - - -4- - - - - - - -5- - - - - - - -6- - - - - - - -7
Disagree Strongly — Agree Strongly

1. I find it relatively easy to get close to others. [1]
2. I'm comfortable depending on others. [1]
3. I'm comfortable having others depend on me. [1]
4. I don't worry about being alone. [1]
5. I don't worry about others not accepting me. [1]
6. I am comfortable without close emotional relationships. [2]
7. I find it very important to feel independent and self-sufficient. [2]
8. I prefer not to depend on others. [2]
9. I prefer that others do not depend on me. [2]
10. I want to be completely emotionally intimate with others. [3]
11. I often find that others are reluctant to get as close as I would like. [3]
12. I am uncomfortable being without close relationships. [3]
13. I sometimes worry that others don't value me as much as I value them. [3]
14. I am somewhat uncomfortable getting close to others. [4]
15. I want emotionally close relationships. [4]
16. I find it difficult to trust others completely. [4]
17. I find it difficult to depend on others. [4]
18. I sometimes worry that I will be hurt if I allow myself to become too close to others. [4]

[1] Secure attachment items
[2] Dismissing attachment items
[3] Items loading on the preoccupied subscale
[4] Items loading on the fearful subscale

Appendix I

Technology Use Questionnaire (TUQ)*

(Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013)

Directions: How often do you use each of the following types of technology when communicating with your romantic partner? Please use the following scale to select the number that corresponds with the appropriate frequency.

0 = Never
1 = Few times a year
2 = Once a month
3 = Few times a month
4 = Once a week
5 = Few times a week
6 = For a short period of time each day
7 = Several hours each day

1. Telephone
2. E-mail
3. Social Networking Sites (e.g., Facebook. Twitter)
4. Text Messaging
5. Instant Messaging (e.g., Gchat, Facebook chat)*
6. Video Chat (e.g., Skype, FaceTime)*

* I added items 5 and 6 to the original measure.

Appendix J

Global Measure of Sexual Satisfaction (GMSEX)

(Lawrance & Byers, 1998)

Directions: Overall, how would you describe your sexual relationship with your partner? For each pair of words below, select the number which describes your sexual relationship as a whole.

1. Good Bad
   7 ---------- 6 ---------- 5 ---------- 4 ---------- 3 ---------- 2 ----------1

2. Pleasant Unpleasant
   7 ---------- 6 ---------- 5 ---------- 4 ---------- 3 ---------- 2 ----------1

3. Positive Negative
   7 ---------- 6 ---------- 5 ---------- 4 ---------- 3 ---------- 2 ----------1

4. Satisfying Unsatisfying
   7 ---------- 6 ---------- 5 ---------- 4 ---------- 3 ---------- 2 ----------1

5. Valuable Worthless
   7 ---------- 6 ---------- 5 ---------- 4 ---------- 3 ---------- 2 ----------1

Appendix K

Couples Satisfaction Index-16 (CSI-16)
(Funk & Rogge, 2007)

1. Please indicate the degree of happiness, all things considered, of your relationship.

0	1	2	3	4	5	6
Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect

2. In general, how often do you think that things between you and your partner are going well?

5	4	3	2	1	0
All the time	Most of the time	More often than not	Occasionally	Rarely	Never

	Not at all True	A little True	Somewhat True	Mostly True	Almost Completely True	Completely True
3. Our relationship is strong	0	1	2	3	4	5
4. My relationship with my partner makes me happy	0	1	2	3	4	5
5. I have a warm and comfortable relationship with my partner	0	1	2	3	4	5
6. I really feel like part of a team with my partner	0	1	2	3	4	5

	Not at all	A Little	Somewhat	Mostly	Almost Completely	Completely
7. How rewarding is your relationship with your partner?	0	1	2	3	4	5
8. How well does your partner meet your needs?	0	1	2	3	4	5
9. To what extent has your relationship met your original expectations?	0	1	2	3	4	5
10. In general, how	0	1	2	3	4	5

satisfied are you with your
relationship?

For each of the following items, select the answer that best describes *how you feel about your relationship.* Base your responses on your first impressions and immediate feelings about the item.

11.	INTERESTING	5	4	3	2	1	0	BORING
12.	BAD	0	1	2	3	4	5	GOOD
13.	FULL	5	4	3	2	1	0	EMPTY
14.	STURDY	5	4	3	2	1	0	FRAGILE
15.	DISCOURAGING	0	1	2	3	4	5	HOPEFUL
16.	ENJOYABLE	5	4	3	2	1	0	MISERABLE

Appendix L

Supplementary Information

This appendix contains supplementary information for preliminary analyses and discussion of the meaning of these analyses. More specifically, I provide the data on the significant correlations between the variables and the MANOVA results for the demographic variables (i.e., sex, relational/affectational orientation, and relationship status).

Correlations

Pearson correlations were significant between the attachment styles, between the use of technology channels, and between the two satisfaction measures. With regard to attachment style, the associations are consistent with theoretical expectations and previous research (Mikulincer & Shaver, 2007). In significant Pearson correlations from this study, secure attachment was negatively related to dismissing (r = -.20 for LDR), preoccupied (r = -.14 for GCR), and fearful (r = -.62 and -.55, LDR and GCR respectively) attachment styles (Table 4, p. 71). The negative direction is consistent with the securely attached approaching the partner when distress versus the insecurely attached (i.e., dismissing, preoccupied, and fearful), using hyperactivating or deactivating strategies when in distress (cf. literature review, pp. 16-20). Dismissing attachment was significantly negatively related to preoccupied attachment (r = -.28 and -.46), which may reflect the respective use of deactivating and hyperactivating strategies, and was significantly positively related to fearful attachment (r = .26 and .19), which is also an avoidant form of attachment (Bartholomew & Horowitz, 1991). Preoccupied attachment was significantly positively related to fearful attachment (r = .21 for GCR); both these

styles involve higher levels of attachment anxiety (Mikulincer & Shaver, 2007). Second, with regard to technology channel use, technology channels correlations were significant for LDRs and GCRs. The significant positive correlations ranged from *r* = .20 to .66, with the strongest correlation occurring between SNS and IM use (*r* = .66 and .51, LDR and GCR respectively). The strong relationship between SNS and IM use may not be surprising, considering that many SNSs have an integrated instant messaging function. Of note, the only significant negative correlation occurred between email and texting use for GCR participants (*r* = -.25). Perhaps in GCR couples, email and texting serve similar purposes, such that partners who prefer to use one method are less likely to use the other. Third, the two satisfaction measures, sexual satisfaction and relationship satisfaction, were also significantly and positively related (*r* = .41 and .69, for LDR and GCR respectively). This finding is consistent with previous research that indicated a strong positive relationship between sexual and relationship satisfaction (Byers, 2005; Sprecher, 2002).

Preliminary Analysis MANOVA Results

LDRs. The LDR MANOVA analyses (Table L1) revealed no significant differences for sex, ethnicity, international student status, education level, relational/affectational orientation, or dating status.

Table L1

Nonsignificant LDR MANOVA Results

Variable	*F*	*df*	*p*	η_p^2
Sex	1.98	8, 44	.07	.26
Ethnicity	1.06	40, 195	.37	.16
International student status	2.05	8, 44	.06	.27
Education Level	1.22	32, 164	.21	.18
Relational/Affectational Orientation	0.52	16, 88	.93	.09
Dating Status	1.43	32, 164	.08	.20

Note. None of the results were statistically significant at the $p < .05$ level.

GCRs. The GCR MANOVA analyses (Table L2) revealed significant differences for sex, relational/affectational orientation, and dating status. No significant differences were indicated for ethnicity, international student status, or education level.

Table L2

GCR MANOVA Results

Variable	*F*	*df*	*p*	η_p^2
Sex	2.90	8, 106	.01**	.18
Ethnicity	1.30	48, 526	.09	.09
International student status	0.45	8, 106	.89	.03
Education Level	0.92	32, 418	.60	.07
Relational/Affectational Orientation	2.15	32, 393	.00**	.14
Dating Status	2.22	32, 393	.00**	.14

Note. *$p < .05$. **$p < .01$.

For sex, Wilks' Lambda = .82, F (8,106) = 2.90, p = .01, η_p^2 = .18. Univariate follow-up analyses (Table L3) revealed that (a) men (M = 17.54, SD = 3.28) scored significantly higher than women (M = 16.16, SD = 4.17) on dismissing attachment, and (b) women (M = 68.31, SD = 12.37) scored significantly higher than men (M = 63.99, SD = 12.67) on CSI-16 relationship satisfaction. Although some research has found attachment style sex differences (e.g., Matsuoka et al., 2006), the sex differences are not usual, seem to be inconsistent, and are found for specific samples rather than reflecting a

male/female difference in attachment style (Mikulincer & Shaver, 2007). Even though I found sex differences for dismissing attachment in GCRs, the meaning is unclear. The finding may reflect measurement imprecision, given that the dismissing internal consistency was only .61. On the other hand, the sex difference of women reporting higher relationship satisfaction than men has been found in other research (Attridge, Berscheid, & Simpson, 1995; Calmes & Roberts, 2008; Hendrick et al., 1988).

Table L3

GCR MANOVA Results for Sex

Variable	Male (n = 62)	Female (n = 125)	F (1, 187)	η^2
RQ-Sec			0.00	.00
M	23.05	22.63		
SD	4.58	4.80		
RQ-Dismiss			5.68*	.05
M	17.54	16.18		
SD	3.28	4.17		
RQ-Preocc			0.23	.00
M	16.63	15.97		
SD	4.52	4.17		
RQ-Fear			0.37	.00
M	21.75	21.39		
SD	5.33	5.31		
TUQ-Face			2.61	.02
M	7.13	7.27		
SD	0.89	0.93		
TUQ-Total			2.89	.03
M	20.17	18.67		
SD	5.86	5.63		
GMSEX			2.85	.03
M	30.67	31.73		
SD	4.44	4.50		
CSI-16			5.48*	.05
M	63.99	68.31		
SD	12.67	12.37		

Note. N = 187. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16.
*$p < .05$

For relational orientation, Wilks' Lambda = .55, F (32,393) = 2.15, p = .00, η_p^2 = .14. Univariate follow-up analyses (Table L4) revealed significant differences for TUQ face-to-face contact, TUQ total technology use, and CSI-16; but post-hoc analyses could not be completed due to the small cells in multiple groups. Therefore, I re-ran the MANOVA using groups of heterosexual (n = 166) and non-heterosexual (n = 21) participants (Table L5).

Table L4

GCR MANOVA Results by Relational/Affectational Orientation

Variable	Heterosexual (*n* = 166)	Gay Man (*n* = 4)	Lesbian (*n* = 1)	Bisexual (*n* = 10)	Questioning (*n* = 3)	Other (*n* = 3)	*F* (4, 187)	η^2
RQ-Secure							2.11	.07
M	23.02	23.50	16.00	20.10	22.33	16.67		
SD	4.63	1.73	.00	6.12	1.16	3.51		
RQ-Dismiss							1.59	.05
M	16.48	17.25	18	17.70	16.33	19.33		
SD	3.90	3.59	.00	4.08	9.24	1.16		
RQ-Preocc							1.25	.04
M	16.11	20.25	24.00	15.90	16.67	11.67		
SD	4.19	4.43	.00	4.58	6.11	3.51		
RQ-Fear							2.06	.07
M	21.07	22.00	27.00	24.60	25.67	29.33		
SD	5.28	3.16	.00	4.40	4.04	.58		
TUQ-Face							2.68*	.09
M	7.27	7.25	8.00	6.80	7.33	6.00		
SD	.90	.96	.00	1.14	1.16	.00		
TUQ-Total							2.99*	.10
M	19.02	17.50	24.00	22.20	18.00	16.67		
SD	5.36	9.00	.00	10.36	6.08	3.51		
GMSEX							.69	.02
M	31.58	27.50	26.00	32.10	28.00	28.67		
SD	4.56	3.32	.00	3.28	1.73	3.06		
CSI-16							4.98**	.15
M	67.73	59.50	67.00	67.20	44.00	51.33		
SD	12.06	14.34	.00	11.94	18.19	21.36		

Note. $N = 187$. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16. Post-hoc analyses for between group differences could not be completed, because for at least one group, $n < 2$.
*$p < .05$. **$p < .01$.

The collapsed groups MANOVA *F* was significant, Wilks' Lambda = .91, $F(8,181) = 2.12$, $p = .04$, $\eta_p^2 = .09$. Due to the large difference in the size of the two groups, these results may not be trustworthy as the assumption of homogeneity of variance could potentially be violated. Levene's test of equality in error variance revealed significant

differences between the groups in the variance for telephone use, F (1, 188) = 10.35, p = .00, and frequency of face-to-face visits, F (1, 188) = 3.95, p = .05. However, MANOVA is very robust against such violations (Box & Andersen, 1955; Lindman, 1974). Univariate follow-up analyses (Table L5) revealed that (a) heterosexual participants (M = 23.06, SD = 4.62) scored significantly higher than non-heterosexual participants (M = 20.38, SD = 4.17) on secure attachment, (b) non-heterosexual participants (M = 25.05, SD = 4.11) scored significantly higher than heterosexual participants (M = 21.20, SD = 5.27) on fearful attachment, and (c) heterosexual participants (M = 67.67, SD = 12.38) scored significantly higher than non-heterosexual participants (M = 60.14, SD = 15.87) on CSI-16 relationship satisfaction. Attachment style differences for sexual minorities have been documented in the literature (Rosario et al., 2014), with heterosexual individuals reporting higher levels of attachment security than their sexual minority counterparts; however, additional research is needed to further explore this relationship. Further, differences in relationship satisfaction for sexual minorities are not supported by previous research (Cusack, Hughes, & Cook, 2012; Farr, Forssell, & Patterson, 2010).

Table L5

GCR MANOVA Results by Collapsed Relational/Affectational Orientation

Variable	Heterosexual (*n* = 169)	Non-Heterosexual (*n* = 21)	*F* (1, 188)	η^2
RQ-Sec			6.19*	.03
M	23.06	20.38		
SD	4.62	4.92		
RQ-Dismiss			1.48	.01
M	16.54	17.67		
SD	3.94	4.34		
RQ-Preocc			0.18	.00
M	16.19	16.62		
SD	4.22	5.16		
RQ-Fear			10.41**	.05
M	21.20	25.05		
SD	5.27	4.11		
TUQ-Face			3.70	.02
M	7.30	6.90		
SD	0.87	1.04		
TUQ-Total			0.72	.00
M	18.88	20.00		
SD	5.31	8.49		
GMSEX			2.31	.01
M	31.47	29.86		
SD	4.69	3.58		
CSI-16			6.47*	.03
M	67.67	60.14		
SD	12.38	15.87		

Note. $N = 190$. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16.
*$p < .05$. **$p < .01$.

For relationship status, Wilks' Lambda = .54, F (32,393) = 2.22, $p = .00$, $\eta_p^2 = .14$. Univariate follow-up analyses (Table L6) revealed significant differences for dismissing attachment, fearful attachment, TUQ face-to-face contact. For dismissing attachment, (a) casually dating ($M = 19.32$, $SD = 4.30$), seriously dating ($M = 16.86$, $SD = 3.90$), and partnered ($M = 17.02$, $SD = 3.64$) participants scored higher than engaged participants (M

= 13.40, *SD* = 2.84) and (b) casually dating participants (*M* = 19.32, *SD* = 4.30) scored higher than married or married-like participants (*M* = 15.54, *SD* = 3.96). For fearful attachment, casually dating participants (*M* = 24.95, *SD* = 3.70) scored higher than seriously dating (*M* = 20.21, *SD* = 4.93), engaged (*M* = 21.00, *SD* = 4.63), and married or married-like (*M* = 19.42, *SD* = 4.45) participants. For TUQ face-to-face contact, (a) casually dating participants (*M* = 6.42, *SD* = 1.02) reported less frequent face-to-face contact than seriously dating (*M* = 7.09, *SD* = 0.84), partnered (*M* = 7.24, *SD* = 0.92), engaged (*M* = 7.87, *SD* = 0.50), and married or married-like (*M* = 7.79, *SD* = 0.50) participants and (b) seriously dating and partnered participants reported less frequent face-to-face contact than engaged and married or married-like participants. For CSI-16 relationship satisfaction, (a) casually dating participants (*M* = 51.05, *SD* = 15.83) reported lower relationship satisfaction than all other groups (see Table L6 for group means) and (b) engaged participants (*M* = 74.27, *SD* = 4.73) reported higher relationship satisfaction than married or married-like participants (*M* = 66.42, *SD* = 10.07). The noted attachment style differences may indicate the influence of attachment insecurity on relationship longevity; that is, individuals high in attachment insecurity (i.e., dismissing, preoccupied, or fearful) are thought to have difficulty forming and maintaining long-lasting relationships (Mikulincer & Shaver, 2007), which would be indicated by non-dating (e.g., engaged or married) relationships. However, it is unclear why these differences were indicated for GRCs but not for LDRs. It could be that LDRs are more satisfying for the insecurely attached, thus leading the insecurely attached to be more likely to be involved in non-dating romantic relationships than they would be in GCRs. Future research might examine this idea and other possible explanations for this finding.

Additionally, increasing face-to-face contact with increasing order of relationship status in GCRs may reflect the increasing likelihood of cohabitation. Lastly, increasing relationship satisfaction with increasing order of relationship status may reflect the tendency for satisfying relationships to continue and progress past dating, while non-satisfying relationships may end before they reach non-dating relationship statuses. However, it is unclear why this pattern would exist in GCRs but not LDRs.

Table L6

GCR MANOVA Results by Dating Status

Variable	Dating, Casually (n = 19)	Dating, Seriously (n = 48)	Partnered (n = 99)	Engaged (n = 16)	Married or Married-like (n = 25)	F (4, 187)	η^2
RQ-Secure						1.78	.06
M	21.63	24.15	22.20	22.69	23.16		
SD	4.55	4.84	4.69	4.08	4.78		
RQ-Dismiss						5.66**	.17
M	$19.32_{b, d}$	16.86_{b}	17.02_{b}	13.40_{a}	15.54_{c}		
SD	4.30	3.90	3.64	2.84	3.96		
RQ-Preoc						0.34	.01
M	15.95	16.96	15.71	18.44	15.12		
SD	4.28	3.99	4.45	4.34	3.69		
RQ-Fear						3.59**	.11
M	24.95_{b}	20.21_{a}	22.34	21.00_{a}	19.42_{a}		
SD	3.70	4.93	5.70	4.63	4.45		
TUQ-Face						2.53*	.08
M	6.42_{a}	$7.09_{b, c}$	$7.24_{b,c}$	$7.87_{b,d}$	$7.79_{b,d}$		
SD	1.02	0.84	0.92	0.50	0.50		
TUQ-Total						0.95	.03
M	17.32	18.83	19.57	18.12	19.92		
SD	7.42	4.98	6.10	4.82	4.62		
GMSEX						1.93	.06
M	27.16	32.35	31.77	33.81	29.84		
SD	5.54	3.36	4.30	2.26	5.16		
CSI-16						4.78**	.15
M	51.05_{a}	69.58_{b}	67.59_{b}	$74.27_{b,d}$	$66.42_{b,c}$		
SD	15.83	10.38	12.24	4.73	10.07		

Note. N = 187. RQ = Relationship Questionnaire, TUQ = Technology Use Questionnaire, GMSEX = General Measure of Sexual Satisfaction, and CSI-16 = Couples' Satisfaction Index-16. Means in each row with different subscripts are significantly different; so a and b are different, and c and d are different. Means that share subscripts in the same row do not differ significantly.
*p < .05. ** p < .01.

VITA

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EDUCATION

Purdue University, Ph.D. (expected August 2015)
Counseling Psychology (APA-accredited)
Dissertation: *Explaining Relationship Satisfaction: Attachment, Technology Use, and Sexual Satisfaction in Long-Distance Relationships*
Advisor: M. Carole Pistole, Ph.D.

Purdue University, M.S.Ed. (2013)
Counseling Psychology

The Ohio State University, B.S. (2009)
Psychology, Spanish (minor)

The Ohio State University, B.A. (2009)
Criminology

CLINICAL EXPERIENCE

Pre-doctoral Intern, New Mexico State University Counseling Center (APPIC member), Las Cruces, NM, August 2014 – Present

Responsibilities: Provide individual and couples counseling to a multiculturally diverse student body; co-facilitate interpersonal process and masters professional development groups; serve as on-call counselor one afternoon per week for walk-in crisis appointments; complete ADHD assessment batteries, including WAIS-IV, MMPI-2, TOVA, and a semi-structured interview, and provide feedback to clients; develop and present outreach presentations to campus and community

organizations, including low-ropes courses, self-esteem and mindfulness workshops, and tabling events; provide two hours of weekly individual supervision to doctoral-level practicum students; receive two hours of weekly individual supervision from primary and secondary supervisors; serve as back-up counselor for campus crisis line, the CALL, one week per semester; assist director of Counseling Center in administrative duties as an area of emphasis; serve as liaison to Sexuality and Gender Diversity Resource Center; participate in a variety of weekly training and staff seminars

Supervisors: Maria Arizaga, Ph.D. (primary) and Corey Vas, Ph.D. (secondary)

Director, Purdue Counseling and Guidance Center (PCGC), Purdue University, West Lafayette, IN, August 2013 – May 2014

Responsibilities: Administration of the PCGC; trained counselors on clinic procedures; updated clinic materials; contacted and screened potential clients; reviewed and edited all clinical paperwork; supervision of student-counselors

Supervisor: Eric Deemer, Ph.D. and M. Carole Pistole, Ph.D., Licensed NJ

Career Assessment Practicum, Purdue Counseling & Guidance Center (PCGC), West Lafayette, IN, August 2013 – December 2013

Responsibilities: Assessment interviews with high school students who were seeking career counseling; conducted, scored, and interpreted assessments, including Strong Interest Inventory, Skills Confidence Inventory, Career Thoughts Inventory, Myers-Briggs Type Indicator, and Career Values Card Sort; provided written and verbal feedback to students and their parents

Supervisor: Heather Servaty-Seib, Ph.D., HSPP

Doctoral Practicum, Counseling and Psychological Services (CAPS), Purdue University, West Lafayette, IN, August 2012 – May 2013

Responsibilities: Intake interviews; individual counseling to Purdue students from diverse backgrounds presenting with a variety of concerns (e.g., depression, anxiety, grief, relationship difficulties, career indecision); process-observer for an interpersonal process therapy group

Supervisors: Steven Hines, Psy.D., HSPP and Christine Strasser, Psy.D.

Doctoral Practicum, Four County Counseling Center, Logansport, IN, August 2011 – May 2012

Responsibilities: Intake interviews with needs and strengths assessments; individual counseling to community adults presenting with a variety of concerns (e.g., anxiety, depression, anger, abuse) and from diverse backgrounds (e.g., lower SES, Hispanic); disability determinations; facilitated 12-week conflict management and stress management groups

Supervisor: James Noll, Ph.D., HSPP

Assessment Practicum, Purdue Counseling & Guidance Center (PCGC), West Lafayette, IN, January 2012 – May 2012

Responsibilities: Therapeutic Assessment interviews with academically at risk students to establish assessment focus; conducted, scored, and interpreted assessments, including Minnesota Multi-phasic Personality Inventory-2 and Strong Interest Inventory; provided written and verbal feedback to students

Supervisor: William Hanson, Ph.D.

Doctoral Practicum, Purdue Counseling & Guidance Center (PCGC), West Lafayette, IN, August 2010 – May 2011

Responsibilities: Individual counseling to university students and community adults from diverse backgrounds (e.g., African American, international), for a variety of presenting concerns (e.g., anxiety, career indecision, grief, romantic relationships)

Supervisors: William Hanson, Ph.D. and M. Carole Pistole, Ph.D., Licensed NJ

COMMUNITY GROUP and OUTREACH EXPERIENCE

Group Co-Facilitator, Building Pride and Potential Program, Purdue University, West Lafayette, IN, June 2011 – July 2011

Responsibilities: Facilitated two full-day programs for at risk families in the Lafayette and Indianapolis communities, focused on increasing communication and connection between family members

Supervisor: Heather Servaty-Seib, Ph.D., HSPP

Group Co-Facilitator, BRIDGe Program, Purdue University, West Lafayette, IN, February 2010 – May 2010

Responsibilities: Facilitated an 8-week grief and bereavement group for families in the Lafayette/West Lafayette area

Supervisor: Heather Servaty-Seib, Ph.D., HSPP

Co-Presenter, Lafayette YMCA, Lafayette, IN, November 2011

Responsibilities: Stress management lecture and activities with YMCA staff and community adults

Supervisor: Ayse Ciftci, Ph.D.

TEACHING EXPERIENCE

Teaching Assistant, EDPS 31700, Collaborative Leadership: Mentoring, Department of Educational Studies, Purdue University, May 2012 – July 2013

Responsibilities: Collaborated with course instructor to create and prepare course materials; supervised student mentoring experiences

Supervisor: Heather Servaty-Seib, Ph.D., HSPP

Instructor, EDPS 31500, Collaborative Leadership: Listening, Department of Educational Studies, Purdue University, January 2013 – May 2013

Responsibilities: Instructor for one section; course focus was listening and collaborative leadership skills in the workplace; collaborated with faculty to create course curriculum; prepared course materials and activities

Instructor, EDPS 10500, Academic and Career Planning, Department of Educational Studies, Purdue University, August 2012 – December 2012, August 2011 – December 2011

Responsibilities: Instructed two sections each semester; course was for first-year students and focus was on career and personality characteristics related to academic and career decisions; discussed career and personality assessment results with students; assessments included Strong Interest Inventory, Myers-Briggs Type Indicator, Self-Directed Search, Revised NEO-Five Factor Inventory; prepared course materials and activities

Teaching Assistant, EDPS 50000, Group Counseling Theories and Techniques, Department of Educational Studies, Purdue University, January 2012 – May 2012, January 2011 – May 2011

Responsibilities: Prepared materials for BRIDGe program; performed initial interviews with grieving families for BRIDGe program; assisted with various other course preparations

Supervisor: Heather Servaty-Seib, Ph.D., HSPP

Guest Lecturer, Classroom Presentations, Multiple Departments, Purdue University, 2013, 2011

Perfectionism and Stress Management. Presented to EDCI 21000, College Of Education DeVito Scholarship Program, September, 2013.

Multiculturalism and Diversity. Presented to GS 49000, Purdue Promise Facilitation Course, October, 2011.

RESEARCH EXPERIENCE

Research Assistant, Department of Educational Studies, Purdue University, January 2011 – May 2011

Responsibilities: Prepared presentations for an advanced research methods course

Supervisor: Qiu Wang, Ph.D.

Research Assistant, Department of Educational Studies, Purdue University, August 2009 – December 2010

Responsibilities: Completed literature searches, assisted with various research projects

Supervisor: William Hanson, Ph.D.

Research Assistant, Comprehensive Cancer Center, The Ohio State University, October 2008 – July 2009

Responsibilities: Transcribed interview sessions, contacted study participants for follow-up interviews, prepared manuscripts for publication, completed literature searches

Supervisor: Kimberly Kelly, Ph.D.

Student Research Assistant, Worry and Mental Imagery Study, The Ohio State University, August 2008 – December 2008

Responsibilities: Directed participants through three computer-based assessments, organized participant notices, followed participants through multiple sessions

Supervisor: Daniel Strunk, Ph.D.

Student Research Assistant, Cognitive Therapy Coding Project, The Ohio State University, March 2008 – August 2008

Responsibilities: Studied cognitive therapy, coded therapy sessions, input data into database

Supervisor: Daniel Strunk, Ph.D.

SCHOLARSHIP

Bloom, A., & Hanson, W. (April, 2011). *The effects of feedback discrepancy and need for cognition on self-learning and perceived credibility*. Poster session presented at the meeting of the Great Lakes Counseling Psychology Conference, Bloomington, IN.

ADDITIONAL TRAINING EXPERIENCE

New Mexico State University, CC Full-Day Workshop, Center for Deployment Psychology, *Service Members and Veterans on Campus*, February 2015.

New Mexico State University, *Applied Suicide Intervention Training (ASIST)*, August 2014.

Purdue University, CAPS Clinical Staff Full-Day Workshop, R. Federman, *Treatment of University Students with Bipolar Disorder*, May 2013.

Purdue University, CAPS Clinical Staff Full-Day Workshop, D. Oakley, *Group Program Toolkit*, November 2012.

Purdue University, CAPS Clinical Staff Half-Day Workshop, B. Locke, *Use of the CCAPS as a Clinical Tool*, September 2012.

PROGRAM SERVICE

Counseling & Development Student Group, Member, 2009 – 2014
President, 2011-2012
Vice President, 2010-2011
Treasurer, 2009-2010
Multicultural Committee, Member, 2009 – 2014
Social Co-Chair, 2010-2011
Student Mentor, Counseling Psychology Program, Purdue University, 2010-2012
Great Lakes Counseling Psychology Conference 2012 Planning Committee, Purdue University, April 2011-2012
Student Representative to the Faculty, Counseling Psychology Program, Purdue University, Spring 2010
CPSY Orientation Planning Committee, Fall 2010

PROFESSIONAL AFFILIATIONS

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HONORS & AWARDS

Recipient, Purdue Research Foundation Grant, Department of Educational Studies, Purdue University, Summer 2013
Recipient, Ross Fellowship, College of Education, Purdue University, 2009-2013
